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Roberta V. Nata
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Contents

Preface

This volume consists of eight chapters that detail progress in education. Chapter one introduces the issues that contribute to feelings of unpreparedness in classroom management for novice teachers and reinforces the need for evidence-based classroom management training. The authors in chapter two articulate the main elements of a model of fully online learning communities (FOLC) and suggest strategies for implementing these collaborative workspaces across education and employment sectors. Chapter three discusses the impact of mentorship in the medical community and suggests a need for a transformative and inclusive pathway that is free from bias and discrimination for all medical professionals. Chapter four examines the connections between digital learning and experiential learning. Chapter five investigates traditional assessment and evaluation strategies, arguing cohesively that old strategies do not fit a new world order. The authors of chapter six aim to identify OAE success factors and select a suitable digital platform to maintain education quality. Chapter seven explores the nuances of professional identity among students specializing in economics, information technology (IT), and psychology. Chapter eight investigates the problems of anthropology in pedagogical education, i.e., the inherent nature of teacher training in interdisciplinary and digital educational environments.

Chapter 1

Evidence-Based Classroom Management Training for Novice Teachers

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Abstract

This chapter introduced the issues that contributed to feelings of unpreparedness in classroom management for novice teachers and reinforced the need for evidence-based classroom management training. The research purpose was to describe how feelings of unpreparedness were shaped by teacher preparation programs. The methods were supported by constructivist, social constructivist, and instructional scaffolding theories that showed how learning grew from active and personal meaning-making using modeling and practice with gradually reduced support leading to increased classroom management autonomy. The qualitative, descriptive case study utilized interviews, course descriptions, and transcripts from eight novice teachers in the California Bay Area to describe teacher preparation and classroom management needs. Evidence identified a lack of practical classroom management approaches, poor preparation for behavior issues, and minimal classroom management training during teacher preparation. Findings reinforced the effectiveness of evidence-based, preventative, and nonverbal classroom management strategies that supported practical, evidence-based approaches, stronger teacher training, and support for novice teachers by educational leaders.

Keywords: classroom management, novice teachers, teacher preparation, evidence-based

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Introduction

Though classroom management could be confused with classroom discipline, classroom management was really about the strategies that teachers used to oversee and handle student behavior and learning. These strategies utilized the classroom structure, clear expectations, positive student-teacher relationships, engagement, and self-regulation to motivate student learning (Collier-Meek et al., 2019; Korpershoek et al., 2016; Reupert & Woodcock, 2010). Classroom management strategies helped novice teachers gain student cooperation on learning tasks, build more positive relationships with students, and handle behavioral issues that disrupt learning. It was important for teachers to organize their classroom management and plan for active engagement as this laid the groundwork for relationship-building and a positive learning environment.

Three areas of classroom management where novice teachers needed training included evidence-based strategies, preventative strategies, and nonverbal strategies. Potential classroom management pitfalls and problems could be avoided through the use of evidence-based classroom management strategies (Romano 2012a, 2012b). Learning to use a variety of evidence-based classroom management helped to communicate classroom expectations and manage learning (Zeki, 2009; Zuckerman, 2007). Preventative classroom management strategies like preparing a management plan for the first few weeks of a new school year helped reduce classroom issues and set teachers and students up for a successful year. Preventative strategies were used to anticipate disruptive issues, build respectful relationships with students, and clarify expectations (Romano, 2012b). Novice teachers needed to learn and utilize evidence-based preventative classroom management strategies rather than relying on reactive discipline to create environments for learners (Kwok, 2017). As an overemphasis on reactive discipline strategies could result in increased negative interactions in the classroom and strained student-teacher relationships, preventative strategies were used to counteract classroom issues such as behavioral disturbances that impeded learning. These strategies included monitoring student engagement, providing clear classroom rules and active supervision, and utilizing evidence-based classroom management strategies (Butler & Monda-Amaya, 2016). Nonverbal communication has been an underutilized resource to build positive classroom relationships. Nonverbal classroom management strategies such as eye contact, gestures, and classroom movement were sources of student motivation and attention (Pan, 2014; Zeki, 2009) as positive classroom nonverbal communication

increased positive teacher-student interactions (Dobrescu & Lupu, 2014). Nonverbal classroom management strategies such as using teacher proximity, active monitoring, and seating assignments supported active engagement and minimized learning distractions.

The lack of correctly used classroom management strategies limited student learning outcomes (Korpershoek et al., 2016) as teachers needed to be able to respond to student needs with classroom management strategies. Novice teachers have reported struggling to implement strategies into their classroom management practice. Many novice teachers have cited classroom management as their largest concern when entering the classroom or listed behavior management concerns as a deterrent to joining or staying in the profession (Kwok, 2017; Reupert & Woodcock, 2010). Teachers also cited behavior issues and lack of behavioral support as the main reasons for leaving teaching (Butler & Monda-Amaya, 2016; Kwok, 2017). These issues signaled the importance of learning effective classroom management strategies for teacher success. Though issues of teacher burnout and job attrition affected teachers, a poor learning environment affected learners and led to lower achievement (Alter & Haydon, 2017). Disruptions, off-task or disengaged behavior issues, and noncompliance stemmed from classroom management issues and negatively affected learners, teachers, and schools. Without effective classroom management skills, behavioral issues could disrupt learning with both teachers and students suffering the consequences. Minor behavioral problems could escalate into important issues when underprepared teachers cannot handle classroom management (Butler & Monda-Amaya, 2016).

Many of the classroom management strategies taught in teacher preparation programs were found to be ineffective in the classroom (Flower et al., 2017; Matus, 2001). Historically, ineffective classroom management strategies stemmed from differing school environments with some research focused on student-oriented strategies while other studies focused on task-oriented strategies (Matus, 2001; Moskowitz & Hayman, 1976). Though research on classroom management preparation has been ongoing, there was no significant improvement in novice teachers' reported preparation concerns in classroom management (Alter & Haydon, 2017). Despite receiving additional training opportunities from state-required two-year induction programs for novice teachers, California teachers reported classroom management uncertainty and a struggle to address clear expectations in classroom management leaving teachers requesting additional areas of support such as observation with feedback (Cooper et al., 2018; Mireles-Rios et al.,

2019). Though several support systems are offered to novice teachers such as mentoring, induction programs, classroom observations, and administrative support, problems with classroom management preparation continue. It was reported that 72% of teachers were dissatisfied with their classroom management preparation during teacher training (Eisenman et al., 2015) and that 43.8% of teachers reported feeling somewhat or not at all prepared for classroom management in the first year of teaching (U. S. Department of Education, National Center for Education Statistics, 2019).

Teachers were not the only ones who noticed the need for more effective classroom management. Educational leaders such as school principals, teacher coaches, and the educational community focused on classroom management abilities when assessing teacher effectiveness (Zuckerman, 2007). Unfortunately, the need for evidence-based classroom management has not been addressed by teacher preparation programs. Novice teachers discovered that classroom management courses contained mainly theoretical knowledge with minimal practical use and that the strategies they learned were not research or evidence-based (Eisenman et al., 2015). This showed a misalignment between what researchers have found about classroom management and the training offered within teacher preparation programs. Only 27% of teacher training programs included an entire course devoted to classroom management instruction, theory, and practice (Oliver & Reschly, 2010).

Despite a need for evidence-based classroom management, few teacher preparation programs offered the needed focus on classroom management within teacher learning programs leaving novice teachers feeling unprepared to manage student behavior (Eisenman et al., 2015; Kwok, 2017). Novice teachers were expected to manage classroom behavioral problems with minimal support upon completion of teacher training. However, studies showed that novice teachers felt unprepared to manage problem behaviors resulting in little focus on building teacher-student relationships or on consistent strategies to improve behavior (Kwok, 2017; Reupert & Woodcock, 2010; Zuckerman, 2007). Helping novice teachers feel prepared to manage student behavior issues with minimal outside support has been a needed focus in teacher training programs.

The problem was that teachers needed to feel prepared to implement evidence-based classroom management strategies, support student learning, and create a positive, engaging learning environment (Cooper et al., 2018; Korpershoek et al., 2016; Mireles-Rios et al., 2019). Instead, teachers reported feeling unprepared to manage a classroom environment and handle disruptive

student behaviors (Alter & Haydon, 2017; Butler & Monda-Amaya, 2016; Eisenman et al., 2015; Kwok, 2017; Oliver & Reschly, 2010; U. S. Department of Education, National Center for Education Statistics, 2019). Issues contributing to novice teachers feeling unprepared to manage classrooms had not been fully explored (Cooper et al., 2018; Freeman et al., 2014; Lojdova, 2020) and research on classroom management needs was not aligned with teacher training (Freeman et al., 2014).

This descriptive case study of California Bay Area novice teachers sought to understand issues contributing to teachers feeling unprepared for classroom management. Within the research, it was unclear what strategies were learned through teacher training and how novice teachers incorporated classroom management strategies into their teaching practice. The study compared descriptions of classroom management by novice teachers to support a deeper understanding of reported feelings of unpreparedness in classroom management. Novice teachers' experiences, course descriptions, and transcripts from teacher preparation programs narrowed the understanding of what novice teachers were taught and what gaps still exist in classroom management preparation. To fill the research gap, this study described novice teachers' feelings of being unprepared for classroom management, identified issues contributing to feelings of unpreparedness in classroom management, described ways novice teachers incorporated classroom management strategies into their practice, and identified novice teachers' perceptions of training in evidence-based classroom management. The overarching research question for this study asked how feelings of unpreparedness in classroom management had been shaped by classroom management preparation in novice teachers.

Significance

As classroom management training has been generally overlooked within teacher preparation programs, additional research on classroom management was needed to restart a conversation on the importance of classroom management training. Insufficient preparation negatively impacted novice teachers' classroom management practices (Cooper et al., 2018; Freeman et al., 2014), so teacher training programs may benefit from understanding novice teachers' concerns about classroom management preparation. The additional focus during teacher training was necessary to support the adoption of evidence-based and nonverbal strategies of classroom management (Cooper

et al., 2018; Eisenman et al., 2015). Teacher training programs needed to include scaffolded learning approaches such as modeling and observed practice of evidence-based, preventative, and nonverbal strategies to give learners an active role in creating a positive learning environment (Collier-Meek et al., 2019; Freiberg, 2002). Recognizing the perspectives of novice teachers on classroom management training could support a deeper understanding of training needs and lead to improved training courses for pre-service teachers. Teacher training has needed to focus on evidence-based classroom management strategies including positive nonverbal strategies to increase motivation and positive student attention (Scott-Parker, 2017; Zeki, 2009). Nonverbal classroom management strategies were preferable in a learning environment as organized and planned methods were less likely to disrupt learning.

School systems and administrators needed to address classroom management preparation issues by developing classroom management expectations and supporting novice teachers through professional development and mentorship (Confait, 2015). Informing educational leaders of novice teachers' issues with classroom management preparation could contribute to a deeper understanding of classroom management training and support needs. Educational leaders could inform changes to both pre-service teacher training programs and in-service professional development offerings. School and district administrators needed to supplement current classroom management knowledge by providing professional development training, mentoring programs, and other support for novice teachers. Educational leaders should provide needed support in evidence-based classroom management strategies which may benefit both novice teachers and students through the creation of stronger learning environments.

Novice teachers could benefit from a clearer understanding of classroom management strategies grounded in current research and supported by evidence-based practices. Reflecting on personal classroom management knowledge and practices could help novice teachers better articulate their support needs to mentors, administrators, and district support staff (Baran et al., 2017). Novice teachers also may choose to use classroom management knowledge to support each other and for incoming novice teachers. As learners who were actively constructing the new meanings of their professional role, teachers needed to improve their classroom management skills based on practice, problem-solving, observation, and social interaction (Dilshad et al., 2019; Freiberg, 2002; Howe, 2006). Teachers built on their classroom management knowledge while observing model teachers, applying

instructional planning, organizing the classroom, and learning through instructional and behavioral scaffolding (Freiberg, 2002). Novice teachers could benefit from a discussion of their teaching practices including both their successes and issues. Practice with classroom management strategies puts novice teachers in an active learning role and supports the motivation needed to make positive changes to their classroom environments (Collier-Meek et al., 2019).

Classroom Management (Historical)

Classroom management was vital to the everyday practice of teachers. However, it was often confined to a single class during teacher preparation if it was specifically covered at all. Novice teachers requested training in classroom management strategies above all other topics, as problems with student behavior were a top reason cited for teacher attrition (Alter & Haydon, 2017; Gonzalez et al., 2008). As classroom management research has been misaligned with teacher training, novice teachers needed further training and support to reduce classroom issues that distract from learning.

Teacher training offerings had not provided enough guidance on the five main strategies of classroom management identified by the U.S. Department of Education's Institute of Education Services. These classroom management strategies included identifying a problem behavior and its reinforcing conditions, modifying the classroom environment to reduce problem behaviors, reinforcing appropriate behaviors and skills, requesting guidance from colleagues on classroom issues, and adopting school-wide behavior management programs (Epstein et al., 2008). Pre-service teachers needed to have preventative classroom management strategies explained early and often within teacher preparation. There has been no evidence to support the assertion that novice teachers would pick up on effective classroom management strategies without specific teacher preparation work in classroom management (Oliver & Reschly, 2010). Instead, the inclusion of a classroom management course and observation hours in differing classroom situations supported and improved feelings of self-efficacy and increased self-reflection in teachers (Patterson & Seabrooks-Blackmore, 2017). Little to no focus on classroom management in teacher preparation has caused concern based on the daily need for teacher's classroom management skills. The attention paid to other areas of teacher instruction showed a large divide between classroom management training and other teaching topics. For example, teaching reading

skills had developed theories of instruction, a large body of research, dedicated professional organizations and journals on the topic, national conferences, and multiple teacher preparation courses (Eisenman et al., 2015) whereas classroom management training lacked this structure and validity.

From the 1920s through the 1990s, teacher preparation focused on fewer central ideas including understanding teacher's core traits, content training, the scientific basis and processes of teaching, and what teachers should know and be able to do in the classroom (Cochran-Smith & Villegas, 2015). During this time, teacher preparation programs began to ask questions about accountability and effectiveness, educational policies for teacher certification and licensure, revisions of teaching and learning strategies for the 21st century, and the needs of diverse populations. Teacher preparation programs recommend keeping up with current educational research to prepare teachers for the future of teaching. Teacher preparation needed to focus on preparing novice teachers for the professional requirements of a teaching career, understanding how teacher learning affects student learning, and researching teacher preparation and certification needed to keep up with societal and technological growth (Cochran-Smith & Villegas, 2015).

Many teacher preparation programs did not focus on evidence-based practices while teaching classroom management or during student teaching (Greenberg et al., 2014). Instead, most training programs covered practices such as rules and procedures without much attention to either student engagement or providing praise and consequences to students. A mere 10% of programs provided practice and feedback on behavior management as part of teacher preparation coursework (Greenberg et al., 2014). Preventative classroom management strategies like creating and enforcing rules and procedures, preparation of the classroom space, or student engagement methods were not covered by 40 to 60% of teacher preparation programs (Oliver & Reschly, 2010). Instead, most preparation programs focused on a reactive reduction of behaviors already causing problems in the classroom. Classroom management strategies have been considered important for all teachers to learn and should therefore have been a focal point for teacher preparation.

Clement (2010) perhaps summarized the issue best by stating that academic lessons could not occur until classroom management plans were in place. A historical benchmark study ranked classroom discipline as the number one problem for novice teachers (Veenman, 1984). However, there was no easy fix for the classroom management preparation issue as there were many theories, strategies, and writings about classroom management to

choose from, often with conflicting ideas of how to improve teaching as a practice. With an increased focus on classroom management during teacher preparation, novice teachers would likely feel more prepared to handle various classroom situations and support student needs.

Historically, teacher preparation programs have focused heavily on theoretical classroom management instruction rather than on the practical applications of evidence-based strategies. This focus on theory has left novice teachers feeling unprepared for the day-to-day realities of classroom and behavior management. An incongruity existed between the emphasis placed on reactive classroom management strategies in teacher preparation meant to handle previously existing classroom issues rather than on preventative efforts (Oliver & Reschly, 2010). Teacher training and professional development offerings were needed to offer classroom management strategies to fill the gap left by theory-heavy teacher preparation courses.

Classroom management has needed to focus on the needs of student learners rather than disciplinary strategy use and controlling behavior (Eisenman et al., 2015). Since past management strategies such as asking a student to put away a distracting object were disruptive to learning, novice teachers needed to be shown how to handle behavioral situations effectively while instruction continued. Nonverbal methods of classroom management were found to reduce classroom disruptions while managing the learning environment to prevent distractions (Eisenman et al., 2015; Zuckerman, 2007).

Novice teachers have commonly blamed teacher preparation programs for a lack of supportive classroom management training. However, novice teachers also received little support in classroom management during novice teacher orientation, mentorship programs, and other district and school-level support. Without the needed training or support, novice teachers had been left to struggle or fail as they lacked a strong sense of the leadership needed within the classroom. Novice teachers had commonly reported frustration surrounding classroom management and many even chose to leave the profession over these struggles. Preventative methods and evidence-based practices were needed during training to maintain an effective classroom environment (Oliver & Reschly, 2010; Simonsen et al., 2008) and nonverbal strategies were found to reduce learning disruptions (Zuckerman, 2007).

Evidence-Based Classroom Management

Early studies in classroom management focused on classroom rules as a primary classroom management intervention. However, studies showed that classroom rules had little effect on student behavior and that consequences needed further study to consider when consequences were tied to rules and the ways rules were taught to students (Greenwood et al., 1974; Madsen et al., 1968; O'Leary et al., 1969). The reinforcement of rules and routines was an area of classroom management found to support learning. Other evidence-based practices were studied including classroom monitoring, student accountability, and communication needs. This additional focus on classroom management helped establish good practices based on research and classroom evidence.

Two important studies clarified classroom management research and recommended practices for teachers based on research and evidence. One study developed categories and lists of evidence-based practices to decrease problem behaviors and increase student engagement (Simonsen et al., 2008). These evidence-based strategies included maximizing structure and predictability, ensuring that classroom expectations were both posted and explicitly taught, observing active engagement, and acknowledging both appropriate and inappropriate behaviors (Simonsen et al., 2008). Another important study expanded on historical research by synthesizing previous literature reviews to identify classroom management strategy categories such as antecedent-prevention, instruction-interaction, consequences, and self-management (Conroy et al., 2014).

Evidence-based practices of classroom and behavior management that were proven to be effective strategies for teachers and students were researched more extensively. It was found that teachers should learn to identify problem behaviors and the specific conditions that prompted or reinforced disruptions through careful observation (Epstein et al., 2008). These efforts supported the creation of intervention strategies. Teachers also learned to modify the classroom, review classroom expectations, and change the class schedule or learning activities to prevent problem behaviors and disruptions (Epstein et al, 2008). As teachers managed behaviors and reinforced classroom rules, procedures, and expectations, students could replace problem behaviors or practices. Epstein et al., (2008) also recommended collaborating with teachers or parents for new ideas and assessing school-wide behavioral strategies and programs with teachers and administrators utilizing shared responsibility to create strategy consistency

and a reduction of problem behaviors. Classroom management research highlighted the need to build relationships that would improve student behavior and emphasized that classroom management should start right at the beginning of the school year.

Other researchers studied the need for evidence-based practices to establish agreement on structure and predictability, classroom expectations, active engagement through observation, and planning for behavior reinforcement for both positive and inappropriate behavior (Simonsen et al., 2008). No evidence was found that novice teachers would be able to learn classroom management skills over time through teaching experience alone (Oliver & Reschly, 2007), rather instruction and support were needed to support these teachers with evidence-based classroom management strategies. Teachers needed to understand situational examples for evidence-based classroom management strategies which would include the possible roadblocks to strategy effectiveness. Evidence-based strategies were a helpful tool for novice teachers who struggled with classroom management and needed further support. Researched evidence-based techniques needed a heavy emphasis on prevention rather than reactive strategies to stop unwanted behaviors once learning disruptions had begun (Epstein et al., 2008). Effective classroom teachers used clear rules and expectations that were applied consistently, planned predictable events with routines and cues, frequently utilized both verbal and nonverbal praise, carefully monitored task difficulty, and gave multiple opportunities for student participation (Parsonson, 2012).

Preventative Classroom Management

Preventative classroom management strategies included reducing problem behaviors and classroom disruptions before they interfered with student learning. Effective teacher preparation programs helped novice teachers create a plan to prevent disruptions. Preventative strategies in classroom management focused on positive teaching practices and reinforcement of expected behaviors which were found to be more effective than reactive strategies (Oliver & Reschly, 2010).

Evidence-based preventative strategies were used to manage classes through the use of clear rules and expectations, consistent routines and clear directions, praise and feedback to support positive behavior, opportunities for student responses, and reminders about behavior expectations (Parsonson, 2012; Reupert & Woodcock, 2010). Preventative elements were added within

additional research studies to help form an understanding of preventative classroom management. For example, arranged seating, an evidence-based and preventative nonverbal strategy, supported a positive classroom environment with a reduction in behavior problems (Epstein et al., 2008; Parsonson, 2012). Though preventative classroom management strategies were more effective than reactive strategies, teachers were primarily using reactive strategies to respond to problem behavior. Novice teachers reported using more reactive strategies and short-term fixes to address classroom problems rather than preparing preventative strategies although previously planned and prepared strategies were just as if not more effective (Reupert & Woodcock, 2010).

Nonverbal Classroom Management

Nonverbal strategies have not been explored as much as other strategies within the research. Nonverbal interventions reduced classroom disruptions and hostile interactions, allowed for student self-correction, and preserved other strategies for de-escalating issues (Levin & Nolan, 2003). Strategies such as gesture, proximity, classroom organization, body language, and eye contact usage were included within nonverbal classroom management research as preventative or reactive strategies without specifying the difference in usefulness due to a specific lack of disruption to the classroom as a whole (Zuckerman, 2007). Several nonverbal techniques were successful in engaging students, increasing participation and motivation, and reducing distraction (Pan, 2014; Zeki, 2009).

Novice teachers needed training to communicate more effectively through nonverbal methods as nonverbal communication was shown as significant to the teaching and learning process (Dobrescu & Lupu, 2014). Though it was known that nonverbal communication could be vital when used correctly in a classroom setting, nonverbal classroom management strategies did not receive much attention within classroom management research. Using verbal and nonverbal strategies when communicating instruction helped build effective student-teacher relationships. When teachers use effective nonverbal communication, student confidence could increase, supporting understanding of the subject matter.

Evidence-based and student-centered approaches such as preventative organization, planning strategies, and positive nonverbal communication enhanced classroom management effectiveness. These classroom

management approaches showed a positive effect on learning by changing student or teacher behaviors in the classroom (Korpershoek et al., 2016). Using identified and practiced nonverbal strategies helped to mitigate conflict and support managing difficult classroom situations (Levin & Nolan, 2003). Observing previously filmed classroom interactions with students helped teachers capture unbiased evidence of their nonverbal classroom management and reflect on how to increase the quality of teacher-student interactions.

Nonverbal classroom management strategies such as teacher proximity and scanning the room helped novice teachers assess student interactions, learning needs, and potential problems. Strategic classroom arrangement and proximity control reduced behavior issues and kept students on track when teachers actively redirected off-task behavior and provided needed support (Conroy et al., 2008). As teachers needed to actively move around the classroom to monitor student learning and reduce problem behaviors, active supervision using proximity prevented misbehavior and increased time spent on learning (De Pry & Sugai, 2002).

Physical proximity and eye contact were shown as quick and unobtrusive ways to address minor misbehaviors and combat disruption (Epstein et al., 2008; Greenberg et al., 2014; Reupert & Woodcock, 2010). Using nonverbal classroom management strategies helped teachers maintain instruction while monitoring students. A positive correlation was shown between a teacher's proximity with open body postures during student interactions and higher teacher performance ratings (Barmaki, 2014). Highly rated classroom managers were able to reduce disruptive behaviors and better manage learning.

Other nonverbal strategies such as hand gestures, eye contact, and proximity cued self-regulation of student behavior thereby requiring fewer reactive measures (Marzano et al., 2003). Nonverbal communication including proximity and body movement, helped teachers and students respond to each other and build positive relationships. Students reported that teachers' use of nonverbal gestures, facial expressions, and eye contact supported student understanding, attention, motivation, and concentration on instruction (Zeki, 2009). Teachers should have been trained to move towards classroom problems, stand next to students displaying problem behaviors, lean into students to assess engagement and work, make eye contact, and use proximity as reminders to students to refocus on learning activities.

Classroom Management (Recent)

More recent studies on classroom management supported a need for stronger teacher preparation and additional oversight of mentor teachers as these elements were vital to the guidance of novice teachers (Preston, 2017). Many teacher preparation programs lacked adequate time to practice teaching strategies before licensure. Research reported that teacher preparation programs did not cover evidence-based practices, covered strategies incompletely, and focused on reactive techniques rather than preventative strategies (Moore et al., 2017). This oversight in teacher preparation left teachers feeling unprepared for classroom problems.

One study found that 62% of teacher preparation programs contained a course in classroom or behavior management (Flower et al., 2017). This showed an increased concern over teacher preparation in classroom management. Of the teacher education programs researched, 80% or more addressed some of the universal methods of classroom management which included reinforcing rules and routines, assignment management, parent communication, and maintaining a positive classroom climate (Flower et al., 2017). Despite these improvements, knowledge of classroom management skills was limited in all types of teacher preparation programs, including preparation for special education teachers and alternative teacher certification programs. Several studies found that teacher preparation programs needed to incorporate more classroom management coursework utilizing evidence-based strategies (Eisenman et al., 2015; Flower et al., 2017; Kwok, 2019). In addition, teacher preparation program instructors needed to provide learning and strategies surrounding other vital areas of classroom management training such as planning for interventions, assessment, and responding to challenging student behaviors (Flower et al., 2017; Kwok, 2019). These additional areas of focus were vital to developing the behavioral, instructional, and relationship-building strategies of classroom management with pre-service teachers.

A study by Morales (2017) identified common classroom management problems such as beginning instruction before class was focused and ready, a lack of focus on student engagement and goals of instruction, too much transition time, and a lack of teacher enthusiasm. Issues of classroom management and student behavior needed to be addressed in teacher preparation programs to ensure best practices in the classroom. Focusing on the time on task and beginning with a class routine helped to gain attention, prepare students for learning, and maximize learning time. As classroom

management was a vital skill, substantial preparation was needed for novice teachers to feel prepared to prevent classroom problems, manage students, and remediate disruptions (Flower et al., 2017). Positive relationship development between teachers and students helped to reduce problem behaviors that could disrupt learning. Teaching goal-setting and self-motivation, encouraging, and teaching persistence to students were specific strategies that novice teachers could use to manage learning and classroom behaviors (Sekreter, 2018).

Teacher preparation programs both inside and outside of university settings taught novice teachers how to increase appropriate behaviors in the classroom with individual students. However, these programs focused on reactive strategies of behavior management and only partially covered assessment of behavior such as observational recording systems (Flower et al., 2017). Though all novice teachers needed to learn and develop classroom management skills, Flower et al. (2017) found that special education programs in colleges and universities were most likely, 80% or higher, to include behavioral focuses for teacher preparation programs.

Teacher preparation programs should have only taught classroom management strategies such as rule creation through textbooks and articles that had been proven to utilize effective evidence-based classroom management strategies. The classroom management strategies on creating and using classroom rules taught during teacher preparation had not necessarily been effective ones and therefore wasted the time of novice teachers by recommending features of ineffective classroom rules. Classroom rules needed to be presented to teachers as a continuum with some rules specifically shown as integral to all classroom environments and others that could be modified to suit classroom needs (Alter & Haydon, 2017).

Both pre-service and in-service teachers reported feeling that teacher preparation programs focused on strategies to reduce problem behaviors that were already disruptive rather than focusing on prevention (Alter & Haydon, 2017; Cooper et al., 2018). The need for classroom management preparation is important and should not have been overlooked among other preparation subjects. Even the general public has recognized the importance of classroom management for education. In Gallup polls, teacher quality and teacher education were identified as the top things the community believed would improve schools, and 54% of people believed that teachers were unprepared or very unprepared to handle discipline issues in the classroom (Marken, 2019). Based on the lack of focus on preventative strategies and a public belief in the lack of preparation teachers received, few teachers felt that teacher

preparation contained adequate training in classroom management (Alter & Haydon, 2017).

Collecting data that represented the feelings of teachers on their classroom management preparation helped illustrate preparation issues. Several classroom management studies used quantitative data exclusively to better understand teacher difficulties with challenging classroom behaviors, to show a lack of knowledge of evidence-based classroom management strategies, and to assess usage and confidence in classroom management practices (Butler & Monda-Amaya, 2016; Moore et al., 2017; Reupert & Woodcock, 2010). Collecting participant interviews, field visits, self-recordings, journals, and observations helped facilitate open discussions with teachers, administrators, and parents. These methods could uncover perceptual trends and help answer questions about classroom management beliefs versus teacher actions in the classroom.

Evidence-Based Strategies

Evidence-based classroom management practices in conjunction with effective professional development were needed to support teachers' ongoing learning around classroom management. Classroom management strategy sets detailed by Moore et al. (2017) included a focus on teaching replacement behaviors or behavioral intervention strategies important to classroom management. The research discovered that classroom rules were the main focus of textbooks and articles used in teacher preparation for classroom management, but the strategies taught were often not evidence-based (Alter & Haydon, 2017). Many teacher preparation programs focused on the creation of rules and routines, but missed other needed elements of classroom management. Relationship-building was found to be more important than classroom rules as an effective classroom management strategy (Alter & Haydon, 2017; Mitchell et al., 2017).

There was a need for stronger teacher preparation using evidence-based classroom management strategies. Goss et al. (2017) explained that teachers should strive for a better understanding of the reasons for student behavior and the development of positive classroom environments. For pre-service teachers, classroom management preparation work needed to begin within teacher preparation. The missing elements to support the use of evidence-based strategies were increased teacher training, technical assistance for solving problems, and progress monitoring implementation of both preventative and

reactive classroom management strategies (Mitchell et al., 2017). Some preventative strategies for classroom management included planning or altering the physical layout of the classroom, specifically teaching rules and expectations, developing steps for classroom routines, sharing verbal praise for expected behaviors, providing active supervision and monitoring, giving opportunities for student response, and sharing timely reminders about expected behaviors. Even reactive strategies of classroom management, such as the consistent response to behavior correction with reteaching expected behaviors were considered evidence-based strategies to support classroom management success (Mitchell et al., 2017).

Preventative Strategies

Classroom rules were one of the first strategies that teachers needed to prevent classroom disruptions to learning. Thoroughly researched preventative strategies such as using established classroom routines, establishing clear expectations for behavior, and using positive praise and feedback helped to reduce problem behaviors. Novice teachers did not understand how to use many preventative classroom management strategies even if the teachers knew about them (Butler & Monda-Amaya, 2016). Since there were already concerns about preparation in preventative classroom management strategies, focus on reactive strategies in teacher preparation raised issues around student disengagement and impacts on disadvantaged populations (Hepburn & Beamish, 2019).

Preventative classroom management strategies were more effective than reactive strategies (Hepburn & Beamish, 2019). Preventative strategies allowed teachers to increase the use of routines and provide additional opportunities for student response. Preventing behavior issues led to increased positivity in the classroom by promoting self-discipline, motivation, and growth for students (Kwok, 2017). Teachers and students could benefit from increased use of preventative classroom management strategies. Preventative classroom management strategies provided clarity in classroom procedures and expectations, promoted positive feedback, boosted relationships between teachers and students, and helped to structure the classroom environment for active learning (Cooper et al., 2018; Goss et al., 2017).

Despite the benefits of evidence-based prevention strategies for classroom management, a gap was evident between teacher concerns and classroom management strategies taught during teacher training (Alter & Haydon, 2017;

Butler & Monda-Amaya, 2016; Freeman et al., 2014). Though preventative classroom management strategies were proven useful and supportive for both teachers and students, many teacher preparation programs favored teaching reactive strategies. Teacher preparation program instructors needed to provide increased feedback, peer and mentor discussions, and classroom management practice for pre-service teachers. Increased support and training helped novice teachers when connecting educational theory to their preventative classroom management individual practice (Baran et al., 2017).

Nonverbal Strategies

Novice teachers reported feeling most comfortable with preventative strategies and unobtrusive nonverbal reactive strategies such as proximity, eye contact, or body positioning (Butler & Monda-Amaya, 2016). Other nonverbal preventative strategies like active supervision of the class through proximity and posting rules for students were included in studies about evidence-based classroom management strategies. Teacher proximity and movement were useful for refocusing or redirecting students. For figures of authority such as teachers or parents, nonverbal communication could replace verbal forms to both instruct and build relationships (Scott-Parker, 2017).

Nonverbal communication worked alongside verbal methods to convey meaning and to make communication more effective. Nonverbal teacher-student communication showed the use of posture and body orientation, gesture, facial expression, proximity, and eye contact to build rapport and communication between instructors and students (Scott-Parker, 2017). Nonverbal strategies were often either preventative or reactive classroom management strategies. Using research-based behavioral management strategies helped maintain student attention (Kwok, 2019; Pratolo, 2019). Since communication failure led to learning failure, teachers needed to be taught how to communicate more clearly using nonverbal methods to enhance positive communication and increase rapport (Pratolo, 2019).

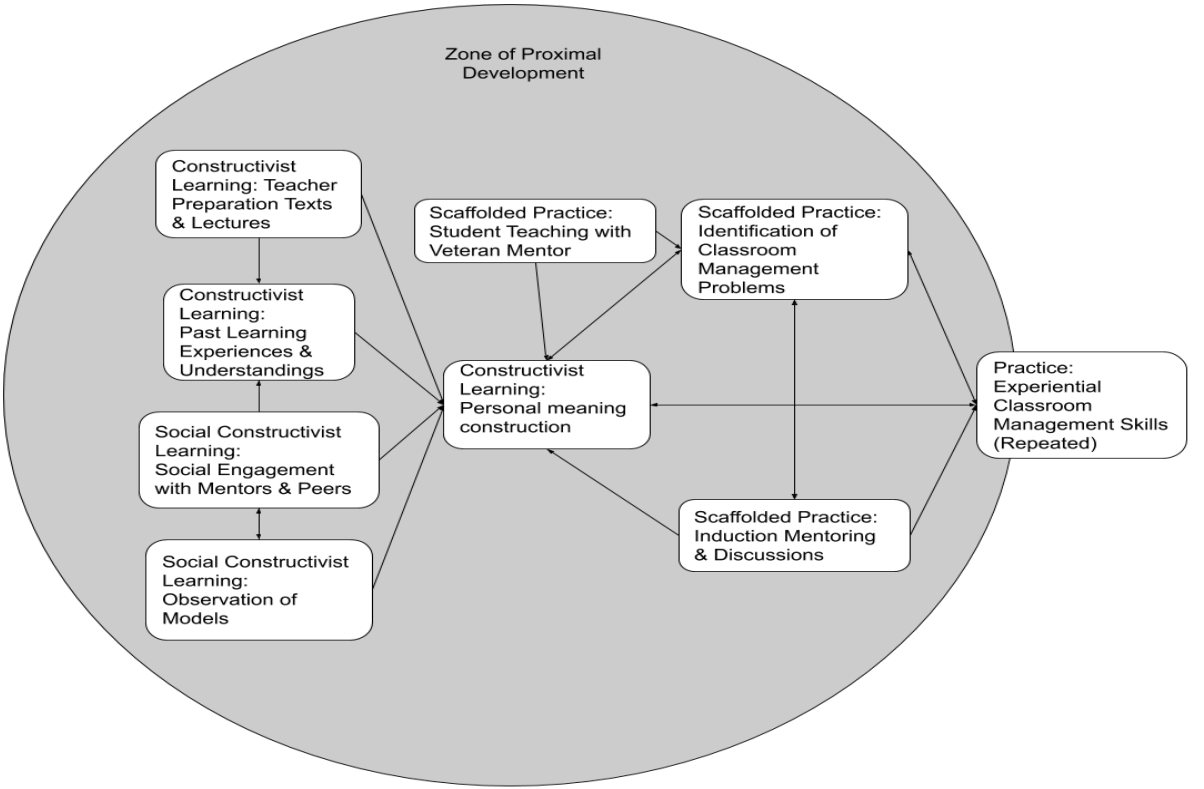

Figure 1. Theoretical Framework Model (Shank & Santiague, 2022).

Theoretical Framework

The chosen theoretical framework contributed to understanding the research background based on established theories of learning. The study of teachers' classroom management knowledge and concerns was based on Jean Piaget's (1932) theories of constructivism, Vygotsky's (1978) social constructivism, and Vygotsky and Bruner's (2009) ideas of instructional scaffolding to support learners. Constructivism, social constructivist learning, and instructional scaffolding supported the idea that learning was developed over time based on practice, repetition, and personal meaning-making. Personal learning in constructivism was knowledge in the active process of change as new learning was constantly added. Learners played an active role in constructivism through experiential learning and internally constructed knowledge based on links to their previous knowledge. Knowledge was added and developed as the learner tried new things and built their intelligence through changing possibilities and invention (Piaget, 1932). When learning classroom management strategies during teacher training, induction, and professional development, new learning was built onto current knowledge to accommodate previous understanding (Dilshad et al., 2019; Freiberg, 2002; Howe, 2006).

In constructivist thought, problem-solving developed new thinking and learning through a link to prior understandings. The addition of social communication through nonverbal signs and gestures and verbal interactions also led to new ideas and personal meaning-making (Vygotsky, 1978). Problems were better understood in social constructivist learning through verbal interaction and nonverbal signs and signals. This allowed learners to understand problems with their internal learning processes and advance development. Social experience played a dominant role in learning through social interaction, copying models from others, and understanding future applications of ideas (Vygotsky, 1978).

Learning was linked to both verbal and nonverbal communication. The zone of proximal development included learning from external modeling, observation, and assistance to push learners toward internal learning development through repeated practice. Social constructivist learning theory includes interaction with others through cooperative and challenging learning experiences using active engagement to form the basis for new learning (Vygotsky, 1978). Observation of veteran teachers using specific observational criteria supported learning from classroom management texts in teacher preparation. Observation and practice helped novice teachers construct

realistic ideas for classroom management strategy use (Dilshad et al., 2019; Freiberg, 2002; Howe, 2006).

Adding instructional scaffolding to social constructivist learning theory stemmed from a belief that any student could learn what was well taught. Actions and thought were practiced, internalized, and reproduced with more complicated systems (Bruner, 1997), and supports or scaffolds were gradually reduced and withdrawn as learners became more independent, self-regulated thinkers (Bruner, 2009; Yoders, 2014). Scaffolded instructional support was an evidence-based learning strategy. As shown in Figure 1, using scaffolded support helped novice teachers build classroom management knowledge as instructors and mentor teachers gradually decreased levels of assistance increasing learner autonomy.

Constructivist and social constructivist learning with scaffolded practice within novice teachers' zone of proximal development led to effective classroom management teaching practice for pre-service and novice teachers. Effective classroom managers need to support positive teacher-student interactions and relationship-building. Teachers needed to utilize strategies to handle student behavior and discipline needs and organize the classroom to develop a consistent learning environment (Freiberg, 2002; Reupert & Woodcock, 2010). A focus on evidence-based classroom management strategies during pre-service teacher preparation and in-service induction programs supported effective classroom management (Dilshad et al., 2019; Howe, 2006). Teacher training needed to focus on active learning, where instructors modeled classroom management strategies and pre-service teachers repeated classroom management practices for growth and development. Engagement in social discussions of classroom management issues with trainers, veteran teachers, and peers also provided support and eventual autonomy for struggling novice teachers (Yoders, 2014).

Methodology

The gap between classroom management training for novice teachers and the effective practices stemming from research needs to be addressed (Collier-Meek et al., 2019; Cooper et al., 2018; Freeman et al., 2014). Previous research studies made recommendations to improve classroom management preparation based on research and evidenced practices (Alter & Haydon, 2017; Baran et al., 2017). This qualitative descriptive case study arose from a need to understand the classroom management preparation experiences of novice

teachers and perceptions of feelings of unpreparedness in classroom management.

The goal of the study was to understand California Bay Area novice teachers' feelings of unpreparedness with classroom management based on learning theories established by Piaget, Vygotsky, and Bruner. There was a need to examine the influence of preparation on novice teachers feeling unprepared for classroom management (Freeman et al., 2014). The research question asked how feelings of unpreparedness in classroom management were shaped by classroom management preparation in novice teachers. The goals were to identify issues contributing to novice teachers feeling unprepared for classroom management, describe the ways novice teachers successfully incorporated classroom management strategies into their teaching practice, and identify novice teachers' perceptions of evidence-based classroom management preparation strategies during teacher training. The study described how feelings of unpreparedness for classroom management in California Bay Area novice teachers were shaped by teacher preparation in classroom management based on established learning theories.

Population and Sample

Within the nine counties of the California Bay Area, there were 6,761 first- and second-year teachers during the 2018-19 school year (California Department of Education, 2020). Research participants were drawn from a population of approximately 30 novice teachers from a larger population of approximately 500 teachers within the participating California Bay Area school district (California Department of Education, 2020; Ed-Data, 2019). Participants included teachers who were new to the profession, who had taught for no more than three years, and who were currently employed at the participating school district.

The participating school district was selected due to school test score averages both above and below the state average, a district-wide teacher induction program, availability of novice teacher participants, and researcher access to the educational community. All first- and second-year teachers in California were required to participate in an induction program which made these novice teachers excellent participants in a study of classroom management. Third-year teachers were also included as participants as they were beneficiaries of the full two-year district induction program.

After confirming eligibility, eight novice teacher participants were selected from elementary and secondary schools in the district. Demographic data included the number of years teaching and each participant's highest level of education. Participants were interviewed using semi-structured questions for focused inquiry (Yin, 2018). As the sample size varied in qualitative studies, the participant sample needed to be large enough to cover the needed subject matter and reach data saturation. Six to eight interviews were recommended for a homogeneous sample with multiple data sources (Guest et al., 2006; Hagaman & Wutich, 2017; Young & Casey, 2019).

A descriptive case study design was selected to better understand the perceptions of novice teachers on classroom management preparation and usage. This design helped assess the comfort of novice teachers after learning and practicing skills in evidence-based and nonverbal classroom management strategies during teacher training and induction. Online hour-long interviews focused on each teacher's classroom management experiences, level of comfort with classroom management, use of classroom management strategies, and preparation for classroom management during teacher training. Consent was reviewed at the beginning and ending of each interview and participants were allowed to review their interview transcripts before coding and analysis to ensure clarity. Credibility and trustworthiness measures included transparency in data collection methods, accounting for research bias, explanation of the sampling processes, clear interpretation of data, and member checks of interview transcriptions (Noble & Smith, 2015).

Instrumentation

In qualitative studies, the researcher was the primary instrument for data collection. For this study, the researcher collected, transcribed, analyzed, and interpreted data from interviews, documents, and field notes and used multiple data sources to identify underlying themes.

Interviews were the primary source of research data due to deep, rich, contextual data from discussions with research participants that gave insight into the novice teachers' experiences. Interviews were approached in a relational and conversational style to engage participants and remove a sense of judgment or evaluation of personal classroom management choices. The semi-structured interview questions were used as prompts to focus participants on personal experiences and perceptions about classroom management needs and strategies. Issues with classroom management experiences, feelings of

preparation and lack of preparedness, incorporation of specific classroom management strategies, and perceptions of teacher preparation training were specifically addressed within the open-ended interview questions.

A journal of field notes and an audit trail were kept throughout the data collection and analysis processes. Field notes were recorded both during and immediately after each interview to retain data and accurately describe teachers' actions during the interviews and record elements such as nonverbal responses, questions for follow-up, researcher reflections during the interview, and the sequence of research activities showing an audit trail. Descriptive field notes included interview times, dates, locations, and lengths as well as assigned participant pseudonyms. Descriptions of participant inflections, emphases, gestures, facial expressions, and important details and wording from key responses were also gathered into the field notes. All field notes were manually transcribed and categorical notes were combined and integrated within the interview transcripts after each participant's interview. Transcripts of interviews with field notes were emailed to participants for member checking to establish credibility, ensure accuracy, and reduce bias.

As part of the study, participating novice teachers submitted their teacher training program transcripts for review. Both public records from teacher training program websites and personal educational transcripts from novice teachers were collected, transcribed, and analyzed to support a developing understanding of novice teachers' classroom management training.

Participant Demographics

The study participants included eight novice teachers which included both male and female teachers from a variety of perspectives. The demographic information collected was used to verify each participant's completion of a teacher education program. The study participants varied in number of years taught, subject areas, and highest level of education achieved. The confidentiality of each participant was ensured by assigning the pseudonyms Teacher 1 through Teacher 8.

Of the eight participants, two were male and six female. Four participants were in their third year of teaching, two were in their second, and two were in their first. Five participants taught social studies classes with two participants teaching both social studies and an additional elective subject, either drama or leadership. One participant taught English Language Arts, one taught vocal and instrumental music, and one participant was an elementary education

teacher. The highest degree obtained by five of the participants was a bachelor's degree, while three others had completed a master's degree.

Data Collection

Once university IRB approval was received, several types of data were collected to help answer research questions including documents and archival records, interviews, researcher's direct observations, and participant-observation notes. One-on-one interviews were conducted with participants to collect data for analysis and identify themes and patterns. Identifying common themes helped clarify areas of need to alleviate feelings of classroom management unpreparedness in novice teachers. The one-on-one interviews were approximately 60 minutes in length. Participating novice teachers were asked demographic questions about the level of education achieved and the number of years spent teaching. Open-ended interview questions were used to further explore teacher training in classroom management, strategies used, and feelings of preparation for classroom management. Field notes were collected to include participants' nonverbal interview elements such as vocal inflection, emphases during responses, gestures, and facial expressions. Participant transcripts were collected to show coursework taken during teacher training. The researcher assessed differences in classroom management and other teacher preparation course descriptions from preparation program websites. Each participant's interview transcript and interview field notes were emailed to the participant to establish credibility through member checks.

Data Analysis

Data analysis included processing and assessing collected data using logical techniques to search for patterns. Collected data was analyzed using Yin's (2015) five-step data analysis approach, Malterud's (2012) systematic text condensation, Nvivo 12 qualitative data analysis software, and open, axial, and selective phases of manual coding (Saldana, 2016). Yin's five-step approach to data analysis supported textual data analysis by compiling data, disassembling data into phrases, reassembling data according to patterns, interpreting data meanings into themes, and concluding data into findings. Systematic text condensation entailed transcribing audio recordings and online course descriptions and organizing data into documents. Large amounts

of data were read and reread to seek the preliminary themes within interviews. Hand-coded lists were condensed by looking for patterns and similarities. Shorter phrases summarized the main interview points utilizing participants' words using descriptive coding. Axial coding cycles consisted of matching code phrases into patterns by their similarities and differences. The shorter code phrases were matched based on topic using classification, prioritization, synthesis, and theory building. Interview transcripts were cleaned and imported into Nvivo 12 qualitative data analysis software to identify frequently used words, create a word cloud visualization, and develop word trees. Similarities and differences between ideas were used to organize and reorganize ideas towards a concept of best fit.

The categorization process of organizing and coding data was integral to data analysis. The first cycle coding included phrases that addressed feelings of unpreparedness stemming from classroom management training and the classroom management strategies that novice teachers found successful. Patterns and themes were identified using both manual coding methods and qualitative data analysis software and then reassembled using comparisons. Interview transcripts were cleaned to remove both interviewer statements and demographic questions, then imported into the Nvivo 12 software as nodes to identify word frequency data results and create a word cloud visualization. Though the Nvivo 12 outputs did not produce final themes, this step supported the by-hand sorting of second cycle codes to add to developing themes.

The second cycle of axial coding took the shorter code phrases and matched them into patterns based on topic or meaning using classification, prioritization, synthesis, and theory building. Themes were grouped based on similarities of words and phrases and importance to the research question and objectives. The similarities and differences in the responses were identified by repetitive reading of the transcripts, line-by-line, to group the data. This coding cycle included a comparative analysis of the participants' transcripts and the course descriptions collected from program websites to understand the training offered in classroom management.

From the eight participants' transcripts, six training programs were identified and categorized as undergraduate programs, graduate programs, programs resulting in a teaching certificate only, programs including a degree in education with a teaching certificate, number of credit hours in classroom management coursework, dedicated focused classroom management coursework, and classroom management coursework that was integrated with other topics.

The third cycle of selective coding linked code phrases using the research problem and objectives, theoretical framework of learning theories, and visual representation of phrases to narrow chunked ideas into described themes. Themes were developed by linking ideas under a single sentence heading to create answers to the research question and change qualitative data into a story of novice teacher experiences. Findings were organized into themes to illustrate a focused understanding of participants' experiences based on descriptive evidence. As coding was both an art and a craft (Saldana, 2016), the results stem from a combination of methods to develop themes. Data analysis concluded with an audit trail that explained discovered themes and their relationship to the research question and objectives.

Results

The results were limited by the time available for the study, participation, availability of participants, data gathering approaches, use of a single researcher for analysis, and the limited recruiting approach required by the participating school district. Emergent themes were based on participant language to describe personal experiences with classroom management and teacher preparation. When data analysis was complete, themes arose from the multiple commonalities observed among the personal and professional experiences of participating novice teachers with classroom management and teacher training.

Five major themes emerged from the data, that teacher training programs included more theoretical than practical classroom management strategies, novice teachers struggled to manage student behavior issues in the classroom, there was a lack of adequate training in classroom management, teachers struggled to implement the classroom management strategies taught in teacher training programs, and that the classroom management strategies taught in pre-service teacher training programs were limited.

Teacher Training Programs Included More Theoretical Than Practical Classroom Management Strategies

It was established that teacher training programs' approaches to classroom management instruction were more theoretical than practical. Most

participants reported that as pre-service teachers, they were given books to read but not taught how to practically manage classrooms. Teacher 3 felt that the concepts and strategies taught in teacher training were inauthentic, cerebral, and inadequate and said, “I didn't feel that prepared [*sic*] for classroom management because the things that I had been taught in the first semester to prepare me for student teaching didn’t work.” Teacher 3 advocated for more practical classroom management strategies but specified a need to be taught how to prepare for and handle classroom management situations rather than simply being given books or articles to read. Teacher 3 added a message to teacher training programs saying, “you need to stop with the theory and give us an actual toolbox. We're not prepared.”

Teacher 4 also reported feeling unprepared for classroom management, specifically for the high-risk or extreme situations with student behavior they encountered in their first years of teaching. Teacher 4 explained that they were taught how to manage basic situations but they also reported a need for novice teachers to work under experienced mentors and learn how to handle extreme classroom management situations. Teacher 4 requested “more practice with, maybe a veteran teacher that comes in and talks about these extreme experiences that may or may not happen. I think that there is a way that it could be worked in the program.”

Similarly, though teachers needed to involve parents in managing student needs and behavior, novice teachers mentioned that they were not taught how to build relationships with parents. Teacher 5 reported feeling nervous when talking to parents because they were not prepared to do that. Teacher 5 explained that they felt unprepared for classroom management, “well, the first way is that they [instructors in teacher preparation programs] never described how to build rapport or contact parents. So I felt like that was always my weakness. Coming in, whenever I would have a student not working and I need to contact the parents. ‘How do I do that?’ There was never a structure given.” Teacher 7 expressed concerns over how to discuss behavior management issues with parents saying, “what do I do with parents who don't answer the phone at all, who are not involved? And with repeated behavior issues that aren't corrected by all of these strategies?” Teacher 7 added, “I feel like we were only prepared to such a point, and then, after that, these [issues] are the most troubling ones for a teacher, I feel like I wasn't prepared for that.”

All eight participants reported an overreliance on educational textbooks within their teacher preparation. Teacher 8 said that they were given a lot of books on classroom management to read but that more focus was given to other topics sharing, "I just didn't have the hands-on experience, and I think

that is the key piece." Teacher 7 stated that even though theory helped them to deliver an effective curriculum and help students achieve learning outcomes, learning how to apply classroom management was a more critical need saying, "in a practical sense, I feel like it was more like armchair classroom management than like, 'this is how to handle these actual situations.' We didn't do enough of that. We did very, very little."

Novice Teachers Struggled to Manage Student Behavior Issues

Novice teacher participants reported challenges dealing with disruptive situations that arose from student behavior choices. Teacher 1 described students who were physically and verbally rough and did not follow instructions and shared, "it was a pretty rough school. It was gangs, and there were kids [where] I'm like, 'Get off your phone.' And he's like, 'I can't.' And I'm like, 'Why not?' He's like, 'Cause my childcare just fell through. I'm trying to figure out who's going to pick up my son. I'm not getting off my phone.'" Teacher 7 also felt that behavioral choices were difficult to manage, stating "in those situations where things got really serious with students' emotional problems, I definitely didn't feel like I had been prepared. I didn't have a toolkit. I didn't have training." Teacher 8 expressed frustration with behavior management explaining, "the kids were all over the place. I had, literally, one kid that would roll on the floor. And they were just always talking, and I tried so many things." Teacher 2 said, "if you don't have it [strong classroom management], then you have chaos." Teacher 6 expressed issues with disinterested students saying, "they didn't want to [participate], so they just choose [*sic*] not to. And then, either they're kind of sitting there with the grumpy face on or they're actively just talking and goofing around."

The novice teachers shared their understanding of problems in the classroom setting but were unsure how to make the useful classroom management changes needed to counteract issues. Teacher 3 said, "I spent the first six weeks of school acting like I knew what I was doing, and I didn't." Teacher 1 explained that school leadership changes such as new administrators and changed school expectations for teachers and students resulted in confusion for teachers and explained, "I've gone through like six [different administrators]. The policies change [*sic*] so much that trying to align myself with what is expected as a school was challenging." Teacher 4 experienced a similar issue with changing school administration stating, "I feel much more

supported now, but in the beginning, we had a lot of change [*sic*] in our admin. We had a different admin every year."

Another issue uncovered by multiple participants was the need to support a particular student without taking away from others or the class as a whole, especially when dealing with larger class sizes. Teacher 3 said, "there still needs to be some sort of consequence when one kid is stealing my attention to where I can't teach the 27 others in the room" and that in terms of teacher attention, "our well-behaved, consistent students get nothing." Teacher 1 also experienced problems managing large class sizes stating, "I have to be a lot more strict and regimented with my expectations when there are 52 people." Teacher 5 explained, "I had one class that was 65 students and one class that was 32 students… one management technique [that] worked for one, did not work for the other." All of the eight novice teacher participants reported struggles to manage classroom discipline due to unclear expectations at the school level, difficulties communicating with parents and students, and implementation of classroom management strategies to support behavior needs.

Novice Teachers Lacked Adequate Classroom Management Training

The participating novice teachers did not feel they had received adequate training during their teacher preparation. Teacher 3 received no instruction on how to communicate with parents for intervention and support sharing, "it was all about building a relationship with the student. They didn't talk about parent communication. They didn't talk about how to do so in an effective way." Teacher 4 said they were given texts to read and that there were some discussions in class during their preparation in classroom management, but added "but I had some classes… where it was very much more, 'Here's the text. Read the text. Come to class. Talk about the text.' Much more traditional." Teacher 6 reported a focus on rules and routines during their teacher preparation in classroom management stating, "we talked about that [rules and routines] a lot", but that they received limited instruction in providing classroom structure, utilizing instructional supports, or applying consequences.

Many of the novice teacher participants were concerned about knowing what they were doing with their future classrooms during teacher preparation. Teacher 6 said that many things taught were not applicable in all classroom settings, "I feel like they probably talked about how the classroom's

arranged… That's one of the things that doesn't apply as much because we don't have desks [for this subject]. It's like [student chairs are] set up in an arc, and that's the way it is." Teacher 8 reported frustration with their classroom management training during teacher preparation by saying "they didn't give me as much training as I would have liked. That's been on my mind a lot the past few years is, how well do we prepare in the individual schools. And I think it's lacking."

The document analysis of teacher preparation programs showed that the six programs contained a notable range of classroom management inclusion. One graduate-level education program did not offer any coursework in classroom management. Two other programs, one graduate and one undergraduate, did not include a dedicated classroom management course, instead including other subjects within a single semester course such as evaluation. Two other programs, a graduate program and an undergraduate program, offered dedicated classroom management courses, but only during the first, shortened, summer term of the program with classroom management teaching at least one year away from student teaching practice. The final undergraduate program included a dedicated classroom management course taken concurrently with student teaching practice. However, the program had been revised since the participating novice teacher attended to move the dedicated classroom management course into the second term of the three-term program, removing classroom management instruction from practical teaching experience.

Novice Teachers Struggled to Implement the Classroom Management Strategies from Their Teacher Training

During interviews, participants shared instances where they struggled to incorporate active monitoring. Teacher 6 explained that they were unable to move around the classroom to monitor student learning and behavior, sharing "I always have to be at the front." Teacher 6 explained that they try to monitor student needs from their location at the front of the room explaining "I always do [visually scan the room] since I have such a large class." Teacher 5 struggled with classroom monitoring due to the 65 students in the classroom and with limited classroom resources, "unfortunately, because it was that [*sic*] many students, I didn't have enough Chromebooks for that. I didn't have enough paper on the desks. It was always really hard for them. So, I had to modify almost every lesson into using [*sic*] a cell phone… So, they would

pretend they're working, and you come by and go, 'You're on Facebook. You're on Instagram. You're not doing work.'" Teacher 1 expressed a concern that teacher preparation program materials were, "out of touch with the kids and what they needed," and that the need to monitor technology use as part of active monitoring was not covered during teacher preparation. Teacher 1 shared, "I wish they had given us more in terms of how we incorporate technology to monitor students." Teacher 7 did not find the classroom management strategies that were recommended in their teacher preparation very useful explaining, "Like that waterfall thing or whatever it is. They would use those [strategies]… Many of those strategies, to be honest, I've learned from [other teachers]. I didn't learn them from the credential program."

When practicing incorporating feedback and applying consequences, the novice teacher participants shared with students that misbehavior would have consequences. However, the novice teachers found that many of the consequences did not end or deter behavior problems in the classroom. Teacher 2 introduced a point system for student behavior and if the class behaved, the students earned points towards a reward, they said, "when the whole class is ridiculously out of control, I earn points. But then if a behavior is happening, if I have to remind a student more than three times and I've told them that like, 'I've now warned you. We've done three strikes. Your behavior is still, you're excessively talking. How can I help you to stop excessively [*sic*] talking?'" Both Teacher 1 and Teacher 6 wrote referrals or removed students who misbehaved from class. Teacher 1 stated, "'I'll write you the referral, and you're tossed from my class.' So, things like if you're making someone feel unsafe if you're fighting, something extreme." Teacher 6 shared that applying consequences was difficult and said, "that part [applying consequences], I think that was my weakest. I didn't really know what to do."

The participants reported trying praise and rewards to promote appropriate behavior or withholding activities when needed. Teacher 6 mentioned that depriving students of privileges did not work and that giving rewards "doesn't totally work, because if the reward is not something they want, then they're not buying into your process. Then it's not going to do anything. Because if it's a student that doesn't care about their grade, then being like, 'well, your grade's going to go down.' Then that's not something that's going to work." Teacher 3 shared that applying consequences "is definitely an area where I know I need to improve… There are students who don't [care], in which case I try to figure out what else motivates them."

Some novice teachers requested additional support from teacher preparation instructors and mentors such as modeling classroom management

strategies. Teacher 4 explained that during their teacher preparation, behavior management was not modeled saying, “the person that I student taught with, in my opinion, they did not actively engage with students… They taught the material and then [students] did it or they didn’t… it was like [the mentor teacher] didn’t really care.” Teacher 7 shared, “I knew how to promote the behaviors that should be expected that are everywhere, but [I was] not as prepared to deal with situations when those expectations and those behaviors weren’t met by students.”

Several novice teachers reported learning to develop seating charts, greeting students as they entered class, or dedicating a place where students could keep their belongings as part of their classroom structure. Teacher 3 said, "they talked about seating charts and getting certain chatty kids to different places and where to place [students with special needs] so that they can learn the best… it’s hard for my kids to get the structure down." Teacher 2 shared that learning to create structure helped with their classroom management saying, “to be able to put structures in place when you need to… to have an overall framework definitely helps with the chaos.” Teacher 5 shared their frustration with preparation in arranging the classroom sharing that instructors “never really discussed many arrangements. It was more of [an idea] they went over for like 15 minutes one day. The old adage was, everything was just in rows, very structured. You come in, you sit at your seats.” Teacher 7 explained that there was minimal preparation focus on classroom arrangement and that they chose to try out additional methods on their own saying, “perhaps with the [*sic*] providing the structure, maybe not as much preparation as some of the other things. I do remember seeing charts of, like, seating charts… but not quite as much of that…I must have moved their seats around like ten times just trying different things. So, yeah, not quite as prepared on those things.” Teacher 6 chose to change the seating arrangement in their classroom to improve student focus stating, “I flipped it [the seating chart] for one of my classes. Because I needed [certain students] closer to me because they were not participating as much and kind of fooling around when they were not close to me.”

Classroom management struggles became evident from interview field notes of novice teachers laughing at failed attempts to engage with and motivate students and their frustration with those struggles. Teacher 5 was laughing while explaining how they had to pull several disruptive students out of class at once and said, “Even though walking them out of the room was high risk because it was, ‘oh, he's getting walked out of the room, right?’ My students called it the [Teacher 5] talk.” Teacher 7 laughed when explaining

that school rules were initially taught not enforced and said, “yes, we have them [school rules]. [Laughs.]... There's a matrix, like each letter has columns and we walk them through it during [specific class] at the start of the year. So yeah, like many, many, many rules… My school has very, very specific set expectations for behavior and they spend the entire first month of the year drilling that in…. The [acronym] matrix that they teach is more about behavior outside of the classroom. What things to do in the hall, when they're eating lunch, or whatever it is.” Teacher 8 laughed at the idea that first-year teachers were taught how to control student behavior and said, “that's really all I remember having prepared for. Is like [*sic*], if you set up [classroom management] the right way, the correct formulas, and everything, and do everything correctly, you'll be able to have that type of control. And this, of course, I never was able to achieve that. [Laughs] Especially my first year.” Overall, none of the participants reported feeling that classroom management training prepared them for managing student needs in the classroom despite the many strategies attempted.

Classroom Management Strategies from Teacher Training Programs Were Limited

When discussing feedback and consequences, Teacher 4 said that one of their teacher preparation program instructors grouped students according to marks received on their papers saying, “for example, [the instructor] would do a happy face, a flat face, and then a sad face. And it wasn’t really even a grade, it just meant, ‘Come talk to me’ or whatever. Or like, ‘This is good.’ And so, [the instructor] would then group the students…And everyone would look at their work and discuss what they had in common and so then they would know what to focus on and work at.” Teacher 7 discussed feeling unprepared to give feedback and consequences to students, saying, “definitely felt inadequately prepared on that [applying consequences]… and in terms of feedback and academic performance, I think that's maybe an area that I didn't feel as prepared for as well…It almost felt like they expected us to sort of just know that from being in school.” Teacher 3 shared frustrations when trying to use positive student feedback saying, “a lot of times, I’m bargaining. But the positive reinforcement is like, ‘Oh, you want to do that thing’… so they’ll be really good that way.”

Evidence-based strategies of classroom management were either well incorporated or left untaught during teacher preparation. Teacher 4 was not

taught how to use active monitoring and shared, "it was kind of like, 'Hey, you're going to have to be on top of it' [monitoring students], but I don't feel like there was ever really any training for that at all." Similarly, Teacher 8 felt that their preparation in classroom management focused on one method for monitoring behavior using tally marks and said, "I'm not someone who can really get into the tallies. It stressed me out, it stressed the kids out, having to micromanage every little utterance…or every little incorrect thing the kids were doing." In contrast, Teacher 7 was taught how to monitor students during their teacher preparation, sharing, "I felt pretty prepared in that way. There was [*sic*] actually a decent number of examples of things we could do… It was, kind of, really meta. And I think a lot of people didn't catch on to that, but it was. They would use the classroom management group routines with us that we, kind of, would be taught to be using with our students." Teacher 5 also reported learning active monitoring and that their teacher training instructors modeled the strategy and explained, "that one we did pretty well on because [the instructor] would always model that at the beginning of class. [The instructor] would always model. 'Okay, this is how this set is, this lesson is.'"

Some participants reported that they did not learn enough about designing, implementing, and evaluating interventions as part of their classroom management preparation. Teacher 3 said, "I didn't even know what an IEP [Individualized Education Program] was until two weeks before I graduated. I didn't know how to read it. I knew that they existed, but I didn't know how to read it. I didn't know what to do with it. They were introducing us to the different kinds of disabilities, but they didn't teach us how to teach [students with] those disabilities." Teacher 5 shared that the intervention-related classroom management strategies were not taught well and said, "we went over this very minimally" as there was more focus on the subject at the school site than in their pre-service teacher training program. However, both Teacher 4 and Teacher 6 said that they were taught how to design, implement, and evaluate interventions. Teacher 4 explained that teacher preparation program instructors used different scenarios and examples and that, "we worked on that [intervention planning] a lot. Like I said, there were these times where [*sic*] we'd be given these scenarios. And we would sit together as a group and come up with an intervention for a student… And so, we would role-play." Teacher 6 reported taking a course on health and differentiation during their teacher preparation but said, "I think a lot of it [intervention planning] doesn't super stick in my mind because it was a really kind of complicated class and it was online."

When learning to promote appropriate behavior during teacher training Teacher 4 said, “to be honest, I don't feel like I was trained for that [promoting appropriate behavior]. I don’t think that was ever directly addressed.” Teacher 6 expressed their teacher preparation program’s focus on positivity in classroom management when they said, “I know we talked about, like, late to class, you just welcome them in. ‘Thank you for joining us. Go ahead and take a seat. We’re doing this.’ So, kind of, to not make too big a deal out of anything so no one feels like they’re being pressured or attacked in the classroom. So, you’re promoting that positive environment.” However, Teacher 7 said that their teacher preparation classroom management instructor used modeling, and that “I was very prepared to promote appropriate behavior. A lot of that, it was setting routines. And setting expectations was a big part of the preparation, so I felt quite prepared to promote good behavior.” Teacher 7 also reported not feeling prepared for handling consequences as part of their classroom management strategy saying, “the lack of preparation was just a practical implementation of discipline and consequences and how to actually do it.”

Simpler evidence-based strategies such as the creation of rules and routines were covered more thoroughly in most participants’ preparation programs. Teacher 7 felt initially prepared for classroom management, but they later discovered that they didn’t know how to manage some of the behaviors that they encountered in the classroom saying, “I suppose [teacher preparation was] maybe not that great practically. I felt [that] during the credential program, I think I felt prepared. And then when I got into teaching out on [*sic*] my own… I needed more than I was taught.” Teacher 4 said that one of their teaching preparation program instructors was very passionate about the creation of rules and routines and used scenarios in teaching by explaining, “my [course name] teacher… was always about routine. Constantly telling us… So we created a pretend routine and we had to get up in front of the class and had to act it out. And then, as a whole class who was observing, without the group telling us, we had to say, ‘Oh, it looks like this may have been a routine. This may have been the routine because the students already knew what to do.’” Teacher 1 shared that teacher training program instructors modeled rule creation and that “they tried to model a lot of what they were asking us to do with rules and routines.”

The novice teacher participants expressed concern that they were not well prepared for classroom management based on the limited strategies covered in teacher preparation. Teacher 1 referred to their first-year classroom management as a “trial by fire.” Teacher 7 mentioned that they read a single

text on classroom management saying, "we had to read that entire book over a prolonged period of time, significantly more time than was necessary to get through it. And then just kind of talked it through chapter by chapter." Teacher 2 tried many different classroom management strategies with limited success and explained, "you learn a lot when you're on your own in your own classroom. Trial and error. A lot of different ways." Teacher 3 reported using many different resources on their own to supplement their preparation in classroom management and said, "I've trialed [*sic*] and errored. I've been on Pinterest. I've read the books. I've done as much as I can to figure out what works and what doesn't work." Overall, the novice teachers requested additional training in classroom management.

Discussion

As the goal was to understand the issues contributing to feelings of unpreparedness for novice teachers in classroom management, clarifying the needs of novice teachers could benefit future teachers and students and inform improvements in classroom management training and teacher support. The participating teachers shared that some of the critical elements of evidence-based classroom management were missing from their preparation. The findings from this research were supported by research in evidence-based classroom management and supported the need for additional focus on preventative and nonverbal classroom strategy training and support for teachers.

Theoretical Approach to Classroom Management Training

One of the issues identified by novice teacher participants was the theoretical approach to classroom management found in teacher training. Selecting a practical approach was specifically needed in the study of classroom management so that teachers could practice real-world skills before in-class instruction. Teacher training programs did not offer students practical opportunities to apply learned strategies of classroom management. Novice teacher participants were given books on classroom management but few demonstrations on how to effectively manage classrooms in practice. Many novice teachers have discovered that the management courses within their

teacher training programs contained mainly theoretical knowledge with minimal practical use and that strategies learned were not always based on current research (Eisenman et al., 2015). Three novice teacher participants specifically mentioned that classroom management courses relied too heavily on theory and requested specific ideas, strategy toolkits, and additional practice in classroom management with hands-on experience.

Pre-service and novice teachers needed to practice applying newly learned classroom management strategies in different teaching situations. All eight novice teachers expressed a need for active learning and practice with classroom management strategies during teacher preparation. Although theory helped effectively deliver curriculum instruction and helped students achieve learning outcomes, learning to apply practical strategies was also very important for pre-service teachers (Greenberg et al., 2014). Teacher training programs needed to embrace a practical approach to better prepare novice teachers (Kwok, 2017). Successful teacher training program instructors needed to ensure that pre-service teachers were exposed to embedded classroom management training that holistically prepares them for the practical aspects of teaching.

Unprepared for Behavior Issues

All of the novice teacher participants shared instances where they struggled with student behavior and choices with many reporting that they were not well prepared to manage the extreme behaviors they encountered in their classrooms. Classroom management was a subject vital to the everyday practice of teachers but was often confined to a single class during teacher preparation (Alter & Haydon, 2017). As problems with student behavior were one of the top reasons cited for teacher attrition (Gonzalez et al., 2008), novice teachers were clearly in need of additional classroom management training and support. Unfortunately, research on classroom management has not been aligned with classroom management training. Seven of the novice teacher participants reported that they were not well trained in handling student discipline, giving feedback, and applying consequences and were overwhelmed by classroom management needs.

Teacher preparation programs that relied on theoretical classroom management strategies left teachers feeling unprepared for classroom and behavior management during their first years. An incongruity existed between what has been taught to pre-service teachers about classroom management and

the emphasis placed on reactive strategies rather than the prevention of classroom problems (Oliver & Reschly, 2010). Increased classroom management instruction and support was a frequent request by novice teachers as only 15% of all teachers reported feeling very well prepared for classroom management (National Education Association, 2022).

Inadequate Classroom Management Preparation

The novice teacher participants felt that they did not receive adequate training to manage a classroom. Two novice teachers reported struggles with student defiance and explained that they would have liked more strategies to handle defiance in the classroom. Three novice teachers revealed that they did not get any training on how to communicate with parents. Five participants reported feeling unprepared for active monitoring within a classroom. Six novice teachers said they needed additional training to design, implement, and evaluate interventions. Seven participants felt unprepared to give feedback and apply consequences. Given these results, it was not surprising that so few teachers felt that they had received adequate training in classroom management (Oliver & Reschly, 2010). As classroom management strategies were important for all teachers, they needed to be a focal point for teacher preparation coursework.

Based on the lack of focus on preventative strategies and public concern over the lack of preparation teachers receive, few participants felt that their teacher preparation contained adequate training in classroom management (Alter & Haydon, 2017). Six of the novice teacher participants felt that their teacher preparation program had not provided adequate practice in classroom management before teacher licensure. Four participants even experienced a reduced student teaching practice or no student teaching practice at all due to teacher shortages, changed assignments, or mentor absence.

A Need for Evidence-Based and Nonverbal Classroom Management

The participants reported applying classroom management strategies from their teacher training programs and professional development such as incorporating active monitoring of students by walking around the classroom.

When students were working independently, teachers used nonverbal body movement, gestures, eye contact, and proximity to redirect inappropriate behavior (Collier-Meek et al., 2019). In active monitoring, the teacher should not be seated at a desk or merely standing in one area at the front of the room as it was not possible to scan student work clearly from one position or offer individual feedback and correction. The participating novice teachers agreed that teacher movement, proximity, and scanning the room were vital nonverbal classroom management strategies. However, seven of the novice teachers reported that they needed better training and practice in active monitoring during their teacher preparation. As part of their active monitoring, participants described using verbal phrases or nonverbal gestures to ensure that students were attentive or returned focus to the class. Some participants used a countdown from five to one to remind students of classroom focus or volume expectations and other participants created nonverbal hand gestures to remove disruptions.

To apply feedback strategies and consequences, participants described teaching students that their actions and choices would have consequences. The participants provided feedback to students by praising them when they did well and correcting them as needed individually, in groups, or as a whole class. Some of the novice teachers gave their students a time out from class or a referral as a disciplinary tool and to offer the time to reflect on behavior or choices.

Novice teachers needed to learn how to anticipate common disruptive problems, build relationships with students based on positivity and respect, and make sure that teacher expectations are clear for students (Romano, 2012b). Novice teachers have found it helpful to reflect on problems and mistakes in the classroom and observe or seek feedback from veteran teachers while remaining true to their chosen teaching style. All of the novice teachers described using praise, supportive feedback, seating charts, greeting students at the door, or dedicating places in the classroom where students could keep their belongings as part of their classroom structure. Participating novice teachers described developing rules and routines to be adopted into the classroom, sometimes using whole class input to provide buy-in or to build rapport.

Four of the novice teachers taught replacement behavior strategies by instructing students on how to behave in class and modeling their expectations. Of the other four novice teacher participants, two said that they did not receive training in teaching replacement behaviors and two others said that it was mentioned, but not well taught. To reinforce behavior, novice teachers used

methods such as losing privileges for misbehaving students including loss of free time at lunch or recess, as well as reporting the issues to school administrators. It was important for the teacher to have a system to enable them to reinforce students for following classroom expectations. As positive interactions need to largely outweigh negative ones in a classroom environment, teachers should make efforts to reward good behavior more often than they correct inappropriate behavior. When manipulating antecedents, the novice teacher participants described changing the conditions that led to students behaving in a particular manner or breaking down instructions to make it easy for students to understand.

Teaching Evidence-Based, Preventative, and Nonverbal Strategies

Participants shared mixed reactions on how classroom management strategies were taught in training programs, as some strategies were taught clearly while others showed classroom management training deficiencies. Only one novice teacher reported feeling adequately trained for giving student feedback and applying consequences, while seven felt inadequately prepared in the evidence-based strategies used to give feedback and consequences to students. Though most teacher training programs practiced feedback and applying consequences in classroom management as part of their coursework (Greenberg et al., 2014), results from this study showed that most participants felt inadequately trained to handle feedback and apply consequences as evidence-based classroom management strategies. All eight novice teachers spoke of feeling unprepared to manage a classroom based on their teacher preparation.

Five participants pointed out that they were either partially trained or not trained in how to actively monitor students. Instead, novice teachers were left to learn these skills on their own during their early teaching years. On the other hand, three participants reported that they were taught how to use active monitoring strategies as their teaching preparation program instructors and mentor teachers modeled active monitoring for them. Freeman et al. (2014) found that though most teacher training programs offered coursework on active monitoring, the content was not well delivered.

Six novice teacher participants reported that they did not learn about effectively designing, implementing, and evaluating interventions during teacher preparation. One participant even stated that they did not understand Individualized Education Programs (IEPs) at all and the other participants

reported that this evidence-based strategy was not taught in their training programs. On the other hand, two participants said that they were well taught in how to design, implement, and evaluate interventions as instructors or mentor teachers used different scenarios and examples to teach these important strategies. Two participants felt poorly prepared to promote appropriate student behavior as they did not know how to address different behavior needs in a classroom setting. Three participants said that teacher training program instructors modeled appropriate behavior promotion in a classroom setting and three other participants recalled practicing some strategies to promote positive classroom behaviors but were uncertain of their skills in this area. Overall, six participants were either partially or fully prepared to promote appropriate behavior. Two participants pointed out that they were taught how to promote positive behaviors using rules and routines and other evidence-based classroom management strategies. One of the participants said that their instructor was very passionate about routines and procedures and used scenarios to reinforce that learning.

Only three participants pointed out that their teacher training program instructors were focused on how to manipulate antecedents such as arranging the classroom environment. These participants were taught that manipulation of individual circumstances was not a way of making it easier for the students but a way of accommodating their needs. Two participants mentioned that they were taught how to be open-minded when trying to create ways to accommodate student needs. Three more participants reported that they were only partially prepared to prevent misbehavior through alteration of demands or providing choices. These three novice teachers described helpful instruction built around classroom management preparation and planning for the first few weeks of the school year. However, the other five participants said that they were not well prepared to provide needed classroom structure and predictable activities for students.

Most teacher education programs addressed universal methods of classroom management which included rules, routines, management of assignments, communication with parents, and maintaining a positive classroom climate (Flower et al., 2017). Novice teachers explained that classroom management information came from informal discussions and texts and often excluded explicit teaching of evidence-based strategies. Seven novice teachers felt that many useful classroom management options were not presented to them, and they were left to discover strategies on their own. Two participants reported feeling well prepared during the credential program, but once teaching on their own they discovered situations with issues they were not taught how to deal with.

Novice teacher knowledge of important classroom management skills has been limited, and teacher training programs needed to incorporate additional coursework and practice to increase novice teacher comfort with evidence-based classroom management strategies (Flower et al., 2017; Hepburn & Beamish, 2019). In addition, teacher preparation program instructors needed to provide learning and strategies surrounding the classroom management topics of interventions, assessment, and challenging student behaviors. Teacher training programs also needed to recognize the importance of nonverbal strategies within the classroom and prioritize nonverbal classroom management training for teachers (Barmaki & Hughes, 2018).

Assumptions and Limitations

Assumptions for this study included the idea that classroom management issues were not random events and that cause-and-effect relationships created understandable patterns in teacher experiences. An additional assumption was that the research participants were capable teachers, licensed in the state of California, and that interview responses were honest personal experiences.

Limitations to the study included the study timeframe, participation and availability of participants, transcripts and course descriptions from novice teachers and teacher training programs, a single researcher to interpret findings, and a restricted recruiting approach. The case study design has been perceived as a "soft" design due to the use of limited participants and informal databases for notes, documents, collected artifacts, and narratives (Yin, 2018). Therefore, to establish trustworthiness and credibility the researcher crafted open-ended and semi-structured interview questions, included an interview protocol and sampling process, triangulated data sources, kept an audit trail, and provided member checks with participants to ensure statement accuracy. The study used a small sample of novice teachers, therefore, results from this study are not necessarily generalizable to larger groups. As novice teacher participants had control over the narrative data provided, the researcher was not able to verify the results objectively against the scenarios shared by participants. The potential for self-serving responses and reactivity of participants to the interviewer might have introduced bias.

As classroom management was an important tool to support a positive learning environment, the study aimed to understand issues contributing to feelings of classroom management unpreparedness in novice teachers to help by revealing gaps in classroom management training. There was an ongoing

need to update classroom management instruction during teacher preparation to alleviate doubts and fears and prepare teachers to manage their classrooms (Lojdova, 2020). This qualitative, descriptive case study highlighted the feelings and perspectives of novice teachers on classroom management preparation and use.

Conclusion

Several recommendations naturally stemmed from research findings. The first recommendation was that teacher training needed to focus more on practical approaches to classroom management rather than prioritizing theoretical approaches. The second recommendation was for teacher preparation programs to invest in high-quality teacher educators who were prepared to model evidence-based classroom management strategies for pre-service teachers. The third recommendation was that novice teachers required continuous support and education on classroom management while in service, especially within their novice teaching years.

Though these recommendations were focused on teacher preparation program instructors, district-level mentors, and induction program instructors, novice teachers should also be taking steps to improve their classroom management skills. Novice teachers needed to focus on their classroom structure and organization to ensure easy access to learning materials and trouble-free transitions between activities. Establishing clear classroom routines and behavior expectations supported students in following classroom norms. Creative solutions increased student engagement as students tended to listen when teachers created energetic lessons and taught them enthusiastically. Veteran teachers and mentors needed to support novice teachers with classroom management practice by allowing for observation, modeling effective strategies, and highlighting struggles or needs in discussion with novice teachers.

Feature Practical Classroom Management Strategies during Teacher Preparation

The first recommendation was based on findings that novice teachers felt unprepared to handle student behavior issues in the classroom due to the

theoretical approach to classroom management in teacher preparation. Many classroom management strategies taught during teacher preparation were found to be ineffective and not supported by evidence (Cooper et al., 2018; Matus, 2001). Participating novice teachers expressed that they were given a lot of books or articles to read when learning classroom management skills, but few opportunities to practice skills. Theoretical knowledge has often been substituted for practical classroom management strategy application showing that additional focus has been needed to support evidence-based and nonverbal classroom management strategies in teacher preparation (Eisenman et al., 2015; Zuckerman, 2007). Teacher preparation instructors did not demonstrate how to apply theoretical knowledge in a classroom or allow sufficient time for pre-service teachers to practice newly learned classroom management strategies. Teacher training educators needed to use creative and active strategies for classroom management practice such as case studies, video clips, classroom scenarios, and role-play. Filmed practice with self-observations would capture unbiased evidence of teacher and student behavior in a classroom and could increase the quality of teaching and interactions when used to train pre-service teachers. Classroom management training should offer scaffolded learning practice and modeling of evidence-based and nonverbal strategies as learners need an active role to support their future use of positive classroom management (Collier-Meek et al., 2019; Freiberg, 2002).

Only 27% of teacher preparation programs have included a dedicated classroom management course (Oliver & Reschly, 2010) and only 10% of teachers have received a full course in classroom management (Cook et al., 2018). Of the participating novice teachers' preparation programs, 63% included a dedicated classroom management course, but other limitations to classroom management learning were found such as limited classroom management practice and shortened course timeframes. One graduate teaching program did not include a classroom management course despite resulting in a master's degree in education which may have been a large oversite considering the reported struggles of novice teachers. Despite notably more teacher preparation focus in classroom management, many teacher training programs teach classroom management strategies that are not based on evidence or research (Cooper et al., 2018; Freeman et al., 2014; Goss et al., 2017) and participant statements showed that little has changed.

Model Evidence-Based Classroom Management Strategies

The second recommendation from this study was to invest in high-quality teacher educators who were prepared to model evidence-based classroom management strategies for pre-service teachers. Classroom management training in teacher preparation has been historically inadequate. However, evidence-based, preventative, and nonverbal strategies are effective when properly applied as part of a classroom management plan. Novice teachers reported that the quality of classroom management training in teacher preparation programs was not good and that teacher preparation instructors were not fully dedicated to the use of effective strategies. Additional training in evidence-based classroom management strategies was needed as part of effective teacher preparation (Cook et al., 2018). Teacher preparation instructors needed to have deep knowledge of the education process and the ability to model various evidence-based, preventative, and nonverbal classroom management strategies for pre-service teachers. As teaching roles required active participation, modeling management of a positive classroom environment was an expectation for the educational profession (Collier-Meek et al., 2019).

To ensure that employed teacher educators were dedicated and effective in their work, teacher preparation programs needed to perform a thorough recruitment and hiring process for instructors who would promote practical and evidence-based classroom management. Educational leaders needed to supplement current knowledge by providing professional development training, mentoring programs, and other needed support for novice teachers. Instructors in teacher training programs needed to provide specific praise and feedback, instructional support for learners with gradual release, an active learning environment, time for discussion and reflection, and modeling skills to reduce passive learning (Collier-Meek et al., 2019; Freiberg, 2002; Howe, 2006; Yoders, 2014).

Provide Continuing Support and Education to Novice Teachers

The third recommendation was that novice teachers needed to receive continuous support and education on classroom management through mentorship programs, novice teacher induction support, professional development, and time to work with experienced veteran teachers. Increasing how novice teachers could learn about, observe, and practice classroom

management skills would provide needed support and knowledge transfer. Educational leaders needed to aid novice teachers through clearly developed and explained classroom management expectations and by providing continued support through professional development and mentoring programs (Confait, 2015). These educational leaders also needed to provide regular classroom management observation and guidance, pair novice teachers with experienced veteran teachers, and offer assistance through corrections and constructive suggestions. As many different strategies were used to teach evidence-based and nonverbal classroom management strategies, strategies could be successfully incorporated by trained teachers when properly taught and practiced. In-service teacher training and teacher induction programs needed to incorporate active learning to improve classroom management skills through practice, observation, mentorships, and social learning opportunities (Dilshad et al., 2019; Freiberg, 2002; Howe, 2006).

Recommendations for Future Research

As the focus of this study was on novice teachers in a California Bay Area school district, further study should be done in other states and outside of the United States to determine whether the issues identified in this study are the same and if new solutions are being attempted. Future research could also expand the number of novice teachers interviewed and include expanded research time or longitudinal studies. The use of additional data-gathering approaches or using multiple researchers to analyze data could provide additional information that could validate, confirm, or refute the observations in this research. A future qualitative study expanding the participant base to include perceptions of veteran educators, school administrators, and teacher trainers or instructors could provide additional insights into classroom management needs and teacher training options. Future studies could also focus on the operational policies of the teacher preparation programs as policy change could influence the overall classroom management performance of novice teachers.

Disclaimer

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Chapter 2

Disruptive Innovation in Online Communities: Designing Digital Learning Environments for a New World Order

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Abstract

In the past decade, numerous organizations have supported the idea of competencies and skills needed to thrive in the 4th Industrial Revolution (4IR). As early as 2013, Voogt, Erstad, Dede and Mishra indicated that young people must be lifelong learners to prepare for occupations that may not exist as they begin formal higher education. Indeed, these societal changes, in particular the rapid and ongoing advances in technology, indicate that the evolution of new jobs, occupational roles and environments that did not exist previously will create pressure on educators and employers to develop new models of learning and training. According to Olson (2015), society is experiencing a skills gap, which

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predicts that education needs to be keeping pace with the needs of the digital work environment. Indeed, the World Economic Forum (2016; 2023) indicated that the primary skills needed by workers in the 21C will include complex problem-solving skills, critical thinking skills, creativity, coordination with others (including collaboration and negotiation), innovation, and emotional intelligence. This list of skills concurs with further analysis by the Conference Board of Canada (2016), the Ontario Ministry of Training, Colleges, and Universities (2015) and the Organization for Economic Cooperation and Development (OECD, 2019). Kaufman (2013) strengthens this argument regarding the essential need for 21C skills for adult learners.

Educators, learners, employees and employers are requiring new workers to demonstrate significant digital competencies and skills and to model learning environments capable of connecting individuals and teams across time zones, nations and cultures (Kaufman, 2013; Olson, 2015; World Economic Forum, 2016; Bates, 2019a; Bates, 2019b; OECD, 2019). Simultaneously, the world faces complex global polycrises for which creative and collaborative solutions must be designed across sectors. This paper articulates a model of fully online learning communities (FOLC) (vanOostveen et al., 2016), wherein digital space, collaborative work, social space and cognitive space become interconnected, intentionally creating learning environments where problem solvers can work collaboratively at solving issues in a socially constructivist context. The authors articulate the main elements of this digital learning environment and suggest strategies for implementing these collaborative work spaces across education and employment sectors.

Keywords: online learning communities, digital pedagogy, disruptive innovation

Introduction

The context of learning in a post-pandemic world has shifted dramatically. There have been increasing calls to "re-imagine" the future of education and to explore a "new normal" emerging from the COVID-19 pandemic (UN 2020; UNESCO 2021). Concurrent global crises of health, economics, climate change and political unrest have created the conditions within which disruptive innovation plays a critical role. One-shot solutions or subject-based, isolated quick fixes are not required to resolve or at least ameliorate deteriorating human conditions. Pandemic conditions further exposed that

traditional pedagogy, historically done face-to-face and often out of context with local classroom contexts is ineffective and sometimes invisible (cite the article included above (2021) as well as Bates 2021). During emergency remote learning, teachers were quickly put in positions to learn to teach online with little or no support, no face-to-face and minimal digital contact with colleagues or students, few digital competencies and little confidence to teach online (Gedak, Crichton & Childs, 2023). Babatunde and Soykan (2020) reveal that

> Online education is deeply rooted in adequate planning and designs of instructions with several available theories and models, but the migration process of the universities to online education becomes questionable because these processes witnessed the absence of proper planning, design and development of online instructional programs due to the pandemic. The crisis-response migration methods adopted by universities are limited to delivery media without taking cognizance of effective online education theories and models. Thus, the crisis-response migration due to the pandemic should not be equated with effective online education or digital transformation of universities but rather be seen from the perspective emergency remote teaching platforms (p. 8).

The rapid migration to online platforms, did not account for the emergency stance and quick time frame adopted by many higher education institutions (Bates, 2021). As such, rather than use disruption as a point of strategic growth, this transition could have done better to purport the advantages of online learning to meet the needs of a vastly different and fast-changing global context. Online learning has historically been seen, pre-pandemic, as an alternative but not a mainstream pedagogical strategy (Bozkurt, et al., 2020). These predisposed views significantly diminished the potential of online learning communities, and simultaneously, many educators came to erroneous conclusions that online learning was not a good option, iterating that they yearned to go ‘back to normal’. “the ERL model, incongruent with evidence-based online instructional practices, became the default practice for sustaining learning, leaving educators scrambling to hone their pedagogy to fit this approach to online delivery” (Gedak, Childs & Crichton, 2023). Essentially,

> Online learning is not a novel discovery, hints on online universities degrees surface as far back the 1980’s, coupled with 1990’s and 2000’s

> as optimal maturation time for online education, and another undeniable fact is that online education has regularly been viewed from the perspective of good-to-have alternative but not a serious-mission model to guarantee steadiness of instructional activities (Ribeiro, 2020, p. 1).

However, the new normal of a digital age means that there are new competencies and basic skills required of learners to be successful in technology-driven working and learning spaces. Currently, there are urgent calls for immediate dramatic shifts in the ways that educational institutions and society in general address employment skills. These pressing demands come from a wide variety of local and global sources, trade magazines, government sites, pan-governmental sites, and organizations associated with the United Nations. Importantly, learning environments focused on promoting teamwork, people management, innovation, creativity and conflict resolution - the key skills identified by Kaufman (2013), Ontario Ministry of Training, Colleges and Universities (2015), Olsen (2015), World Economic Forum (2016), Conference Board of Canada (2016), and Organization for Economic Co-operation and Development (2019). In order to meet these needs, schools and learning environments need to change concurrently. Kaufman concurs that "school is not simply about tests and 'checking boxes' of topics and assignments. Rather, schools today should have a mission of developing students as individuals and igniting their creativity" (2013, p. 79). Voogt et al. also attest that it is generally agreed upon that "collaboration, communication, digital literacy, citizenship, problem-solving, critical thinking, creativity and productivity are essential for living in and contributing to our present societies" (2013, p. 404).

In sum, the global conditions created a perfect storm predicated on a need for fundamental change, which can emerge from the disruption of antiquated educational systems that no longer meet the needs of society. This paper posits one effective solution in online education, suggesting a model designed and tested across undergraduate and graduate courses at a Canadian post-secondary institution with enrolment of over 20,000 students.

The Fully Online Community Model (FOLC)

The Fully Online Learning Community model (FOLC) (vanOostveen et al., 2016) was developed, researched, implemented and tested for over a decade by researchers from the Education Informatics Lab at a Canadian university.

Elements of this model include the intersection of social presence (SP), cognitive presence (CP), and collaborative learning (CL) in a digital space (DS). It has been researched and used across educational, business and professional development sectors as a means of community learning through problem-based learning (PBL) in a co-designed collaborative space. In practice, it effectively mimics how adults learn professionally, using teamwork, a growth mindset and shared sets of complementary skills to help individuals and teams solve problems.

Figure 1. Fully Online Learning Community Model (FOLC) (vanOostveen et al, 2016).

This aligns well with what Hod and Ben-Zvi (2018) refer to as a "humanistic knowledge building community." Here, learners are continually being unconditionally supported by community members, building meaningful relationships both in and outside of traditional class time and modalities while simultaneously acting as 'critical other' to members of the learning community. In this way, risk-taking, growth, and perseverance to solve problems are encouraged and nurtured. Further to this, the FOLC model aligns well with the principle that "the means of resistance may be found within communities that grow through productive dissent, where critical thinking is not a set of rules but a valued practice" (Trininic et al., 2018, p. 625).

The pedagogical principles here are based on key ideas from PBL (Savin-Badin, 2007). The principles of PBL include (a) complex, real-world situations that have no one right answer are the organizing focus for learning, (b) students work in small collaborative teams to confront the problem,

identify learning gaps, and develop viable solutions (c) students gain new information through self-directed learning, (d) staff act as facilitators and (e)problems lead to the development of clinical problem-solving capabilities.

In the FOLC model, the teacher acts as facilitator and guide, power dynamics are centred on the community writ large, and the traditional role of the teacher becomes more invisible (Barber & vanOostveen, 2016). In a world where information is quickly changing, where students learn via Google and YouTube 'just in time,' and expertise is fluid, a community model where everyone is a learner makes cognitive and social sense. The strength of the community rests in the relationships built while learning collaboratively, and the depth of the community is co-created and shaped by the group's learning needs and collectively designed learning outcomes. Savin-Baden (2007) states that

> facilitators and students influence one another in a whole variety of ways, such as their views about what counts as knowledge, the interplay of content and process and the ways in which they do and do not deal with conflict in the team. Facilitators and PBL online teams tend to shape and challenge each other, so that while most teams will meet the learning objectives of the programme or module as a minimum, they will do so in different ways. (p. 50)

As a part of this community, dissent and productive disagreement are welcomed and encouraged. By building respect, co-designing the learning environment, developing a strong social presence, challenging cognitive presence, and encouraging collaborative thinking, disruption and dissent become welcomed elements of the productive functioning of the community (Hod & Ben-Zvi, 2018). Mistakes and failures are accepted, unpacked, and deconstructed to be seen as touchstones and stepping stones for learning, improvement and change (Trininic et al., 2018). In the FOLC community, it is often the mistakes, missteps, and redirections that emerge from disrupting traditional notions of pedagogy, and from this intentional disruption, innovation can evolve and thrive (Kapur, 2016).

> We offer that dissent can be productive and that documenting instances of this, especially 'in the wild,' may be a fruitful endeavor. Specifically, instances of failure to reach consensus may be the locus of unexpected and potentially rich learning—a place for the construction of original

> ideas, process/practices, or identities—a place for innovation. (Trininic et al., 2018, p. 62)

Further, the authors boldly query the role of disagreement, reflecting that disagreement, amongst learners and teachers, often results in deconstruction of old conceptual frameworks and the reconstruction of new ideas. They state, "Are we brushing aside a very real dynamic when we steer students away from disagreement? Are there not times when disagreement is agreeable?" (Trininic, 2018, p. 624). In addition, "the means of resistance may be found within communities that grow through productive dissent, where critical thinking is not a set of rules, but a valued practice" (Ibid, p. 624).

Voices and Choices: The FOLC Model in Practice

As educators who implement the model across undergraduate and graduate-level education courses, the authors have observed numerous trends and student reactions as community members evolve past traditional notions of what learning is, deconstruct past concepts of learning and teacher-learner roles, and collaboratively rebuild a new sense of responsibility towards their learning, and the learning of other members of the FOLC community. The critical roles of everyone in the learning environment provide diverse sources of support, through teaching assistants, faculty, co-learners, and the broader university community.

The current need for students to personalize learning, to learn "just in time" as information adapts and changes, requires educators to embrace the online platform. However, it is also essential to acknowledge that not all online platforms engage students or challenge them to take responsibility for their learning in collaborative communities. The authors argue that the FOLC model can be a digital space wherein disruption is encouraged, learning in new and unfamiliar settings is celebrated, and individuals' lived experiences contribute to the shared collective learning of the group. In sum, learners across sectors are moving towards greater self-directed learning in the context of a critically supportive community; they solve problems and learn what they need to know in real-time, rather than waiting for a discreet mandated class time that is centrally directed by an instructor.

Over numerous university-level courses, the authors have found that learners arrive at the FOLC model with discomfort or anxiety. Having completed, in most cases, a formal education based on teacher-centred

pedagogies, teacher-driven assessment and evaluation, and institutionally designed curricula, learners usually do not have the requisite skills to take responsibility for their learning. In addition, they often do not embrace this responsibility, consistently waiting for teacher direction or expressing the need for specific instructions on how to read academic literature, write formally, and produce assignments and products. In essence, they usually arrive without a strong set of process learning skills. These include but are not limited to, learning to make mistakes, de-emphasizing the importance of grades, working in groups, honouring their own lived experiential knowledge, dealing with constructive feedback from a critical other, being able to dialogue with the instructor, and having concrete and valued input to the design of assignments, assessment strategies and overall evaluations.

However, the authors have found that in 12-week FOLC classes, undergraduate and graduate learners go through a reasonably consistent process, an initial phase of discomfort, followed by sustained struggle and emerging in growth. Learners are changed fundamentally by this process; they begin to embrace and use the skills learned both in class and in their workplaces, as stated by students in FOLC-based classes.

Similar to the global economy, the nature of learning has changed, and pedagogy must shift along with it to ensure that learners' needs are being met. We argue that the needs of the individual learner and the global economy are not effectively met by a system that holds the teacher as the central instructor but by the FOLC collaborative processes that encourage disruptive thinking, deconstruct traditional modes of pedagogy, and embrace a new model of learning, one that better meets the needs of the changing digital environment. Research from the World Economic Forum (WEF), (2023) indicates that the skills needed by workers have changed, and those needed by the labour market include problem-solving, resilience, and lifelong learning.

> Analytical thinking and creative thinking remain the most important skills for workers in 2023. Analytical thinking is considered a core skill by more companies than any other skill and constitutes, on average, 9% of the core skills reported by companies. Creative thinking, another cognitive skill, ranks second, ahead of three self-efficacy skills – resilience, flexibility and agility; motivation and self-awareness; and curiosity and lifelong learning – in recognition of the importance of workers ability to adapt to disrupted workplaces. (p. 6).

Clearly, traditional pedagogical stances that are instructor-centred are not designed to facilitate the development of these skills, and while the evidence from the WEF is only one source that indicates the need for new competencies, numerous other organizations concur such as the Conference Board of Canada (2016) and the Ontario Ministry of Training, Colleges, and Universities (2015) and the Organization for Economic Cooperation and Development (OECD, 2019). Wenger and Snyder (2000) agree that communities of practice can support learners better as the collaborative community solves problems quickly, transfers best practices, develops professional skills, and helps companies retain and attract talent. They attest that communities of practice may come up against obstacles and challenges and that "senior executives must be prepared to invest time and money in helping such communities reach their full potential. That means intervening when communities run up against obstacles to their progress" (Wenger & Snyder, 2000, p. 144). However, a community such as the FOLC takes this a step further, not relying on a central executive or instructor but leveraging the collaboratively built power of the community to solve conflicts, problems and issues. As this appears to be a norm in many businesses today, with meetings and teams using a digital space, the FOLC can be an ideal environment within which to meet future companies' needs. Ultimately, educators and employers need to reconcile the gap between current practices and the imperative to shift focus to design environments that can nurture the development of the new competencies required by digital learners.

New Competencies for a Digital World

The most recent "Future of Jobs Report" by the WEF (2023) states that "within technology adoption, big data, cloud computing and AI feature highly on the likelihood of adoption. More than 75% of companies are looking to adopt these technologies in the next five years" (p. 5). This report is vast and wide-reaching, collecting data from "803 companies – collectively employing more than 11.3 million workers – across 27 industry clusters and 45 economies from all world regions" (p. 5). The nature of learning in workplaces has changed, and thus learning environments need to shift to accommodate employee needs. LittleJohn, Beetham and McGill (2012) attest that the nature of the workplace has changed, and digital forms of information are changing the meaning of what it means to work. They state that these changes are being exacerbated by three factors;

> First, workplaces are being transformed such that production and practice are increasingly knowledge driven. Second, work problems are becoming more complex and third, people are regularly and repeatedly transitioning into new roles and careers, necessitating life-long learning. (p. 547)

Thus, educators must design pedagogy in the context of and collaboratively with this rapidly shifting dynamic. The move to online learning, while done in emergency mode during the pandemic, continues to evolve into a method of learning that is essential not only in educational spheres but in business models as well. Further, the WEF found in their 2023 report that "technology adoption will remain a key driver of business transformation in the next five years. Over 85% of organizations surveyed identify increased adoption of new and frontier technologies and broadening digital access as the trends most likely to drive transformation in their organization" (WEF, 2023, p. 5). Technology will be a key component of business through digital commerce, but it will also continue to affect education, both formal and informal, through accreditation-based institutions such as colleges and universities and for employee professional learning and training. "E-commerce and digital trade are expected to be adopted by 75% of businesses. The second-ranked technology encompasses education and workforce technologies, with 81% of companies looking to adopt these technologies by 2027" (WEF, 2023, p. 5). Further to this, the role of artificial intelligence (AI), in the form of chatbots, algorithms and more, will greatly impact how humans learn, what we learn, and who gets to decide what is important to learn. According to the Future of Jobs Report (2023),

> Six in 10 workers will require training before 2027, but only half of workers are seen to have access to adequate training opportunities today. The highest priority for skills training from 2023-2027 is analytical thinking, which is set to account for 10% of training initiatives, on average. The second priority for workforce development is to promote creative thinking, which will be the subject of 8% of upskilling initiatives. Training workers to utilize AI and big data ranks third among company skills-training priorities in the next five years and will be prioritized by 42% of surveyed companies (p. 7).

How might these ever-changing roles be supported by new technologies such as AI? What are the perceived advantages and disadvantages of these modalities?

Working in Transformational Digital Spaces

Recent improvements in the large language model algorithms and the related generative AI applications, such as ChatGPT, Bard, and DALL-E 2, have already begun to modify how many workspaces will be transformed. ChatGPT was released in late November 2022 and has already caused many discussions among educators. These discussions range from the enhancements provided through student engagement and teacher workload reduction to threats to current assessment and evaluation practices (Kirk, 2023). The FOLC model offers insights to address issues derived from introducing AI-based tools and applications.

"Using the General Technology Competency and Use (GTCU) framework (Desjardins, 2005) as a sub-model, FOLC recognizes four fundamental dimensions of human-computer-human interaction (technical, informational, social, and epistemological/computational) and their accompanying competencies as prerequisite layers supporting SP, CP, and collaborative learning" (Blayone et al., 2017). Digital Spaces, one of the FOLC's four dimensions, is defined as a co-created virtual learning environment consisting of a variety of applications which address the requirements of the tasks at hand through the affordances provided by the app (Blayone, 2016). Community members are invited to use applications with which they are familiar and share them with others, making them part of the digital spaces. The Inclusion of these applications provides agency opportunities for the community members to become change agents for their personal practices and the practices of the institutions to which they belong, potentially fostering equity, diversity and inclusion practices (Bridwell-Mitchell, 2016). One study with significance in this area found that while online students and instructors were aware of and comfortable with many Web 2.0 (Social Media) applications, which might have been expected. However, Web 3.0 (Semantic) applications were not familiar to most online students and instructors and consequently, these are generally not used in FOLC-type environments. Frisendal (2023) suggests that "generative AI and its results are an exercise in context sensitivity – in other words, semantics, meaning, structure, relationships, over time" (bottom half of article).

As stated earlier, the apps added to the digital space should be linked to the requirements of the tasks which have been identified; however, since the nature of the tasks changes in the context of FOLC-type environments from a narrative style to an investigative, problem-finding and solving orientation, the types of applications chosen should support that shift or as Jonassen (1992)

states it "we should focus less on developing sophisticated multi-media delivery technologies and more on thinking technologies, those that engage thinking processes in the mind" (p.2). The generative AI-based apps that are currently available seem to fit well into Jonassen's general description. These apps are generally based on algorithms that predict the next words (or images), or deep learning, that fit based on the many examples of matches available in the training materials. Additional processes within the algorithms provide refinements for accuracy and optimization (IBM, nd). The working of the applications is driven by the prompt or instruction provided by the user or, in this case, the learner in the FOLC environment. In many cases, if the prompt is not sufficiently refined, the results derived from AI apps can be misleading or inaccurate. Consequently, learners must acquire the skill to use generative AI tools effectively.

The skills required to use generative AI tools well fit nicely into the epistemological order of the GTCU framework (Desjardins, 2005). These skills have been defined as

> an array of theoretical and practical knowledge about a specific discipline or domain, generally developed through formal studies or experience and applied as usable methods to use domain-specific digital tools effectively and efficiently. This knowledge, translated into operational methods or schemas is required to assign information processing tasks (computational use) to a digital tool (such as a spreadsheet, a database, a photo or music editing system or any other information processing software, including programming languages and authoring systems), for identifying and solving of problems or for the accomplishment of specified tasks (Desjardins, et al., 2015).

AI tools such as ChatGPT can be applied to a specific domain or field by directly inputting datasets into the application (Dant, 2023) or directing the created prompts to address the appropriate field. FOLC learners must be able to program (code) the AI applications in appropriate ways which in this case require prompts that must be carefully constructed to produce meaningful results (Kemper, 2023). Finally, those results must be applied back to the original field or domain allowing for new understandings of the field to be created.

A series of surveys based on the GTCU and FOLC frameworks have been created by the Educational Informatics Laboratory (EILab). The surveys can be accessed through a proprietary and customizable dashboard, the Global

Readiness Explorer. The "dashboard provides a variety of integrated technological tools designed to give individuals, organizations, and institutions the means to construct complex profiles that can be used to identify gaps in competency attainment and development. [The survey results posted on the] GREx dashboard will also be able to indicate beneficial curricular, pedagogical, and professional learning choices, which could then be addressed by organizations and institutions as a means of meeting the needs of students, employees, or clients" (vanOostveen et al., 2019, p.2).

The primary readiness surveys are the Digital Competency Profiler (DCP) and the Fully Online Learning Community Survey (FOLCS). The DCP provides a generalized glimpse in to the individual's level of skills and competencies used to work with digital technologies for formal and informal purposes (vanOostveen et al., 2019; Blayone et al., 2018; Fancy & vanOostveen, 2018). The FOLCS shows learners' levels of skills with respect to the four dimensions of the FOLC, namely, skills regarding SP, CP, CL and DS (vanOostveen et al., 2019; Childs et al., 2018).

When used in numerous contexts, the DCP shows that responses regarding skills and competencies within epistemological order are not generally well developed (compared to other orders) even for those who do a lot of programming. It is apparent that the development of these skills is not emphasized in educational contexts as evident in computer science curriculum documents suggesting that FOLC-type communities must be vigilant in the structuring of queries or prompts to AI tools which should result in more valid information from the results. Bayne et al., (2020) offer the following provocation:

> We argue that if we do not feel ready at this point to actively welcome our robot colleagues, we should at least be prepared to open the door to them. To the extent that aspects of automation may prove to be genuinely beneficial to teachers, it seems important to remain open to the idea that it may allow us to explore new kinds of critical pedagogies, new creative possibilities, and new kinds of usefulness to our students. The key point we wish to make here is that for this to be the case, research and development of automation technologies in teaching should not be developed for teachers but by teachers. Teachers, the act of teaching, and the learning and well-being of students, not efficiency imperatives or fantasies of frictionless scaling up of education, should be placed at the center of the way we think about automation (p.1).

Discussion

Disruption by nature implies a deconstruction of previously held norms, ideals and principles. The conditions that evolved rapidly and dramatically in the pandemic, created, on the surface, what many academics and educators termed "emergency remote teaching". In essence, the disruption across education, the global economy, health care, environmental and political arenas combined to cause the conditions necessary to facilitate positive disruption. Educators need to adapt, and use the tremendous potential of this moment in time by accepting that digital technologies can and should, disrupt archaic and traditional models of education. Flavin (2012) refers to as "disruptive technologies" (p. 103). He states that "when digital technologies are brought into the classroom setting, the lecturer may have to relinquish some of their authority, thus impacting on the 'rules' and 'division of labour' nodes to enable enhanced learning" (Flavin, 2012, p. 104). Cochrane (2012) identifies this unique sharing of the digital learning environment as one of the critical success factors in digital learning. He states that features of a successful virtual learning environment include "pedagogical integration of technology into the course and assessment, lecturer modelling of the pedagogical use of the tools, creating a supportive learning community, and creating sustained interaction that explicitly scaffolds the development of ontological shifts that is the reconceptualization of what it means to teach and learn within social constructivist paradigms, both for the lecturers and the students" (Cochrane, 2012, p. 125).

Conclusion

This paper argues that the disruption initiated by the global pandemic, while tragic concerning the costs in human life across the globe, presented an opportunity for innovative changes to be made in education. As a system, education is slow to change, and often clings to many aspects of how things have always been done. But, by definition, the world has shifted on its axis, things are not the same, and learning can no longer proceed effectively using pedagogies of the past. Curricula are in the process of changing based on the demands and requirements of post-pandemic contemporary labour markets and diverse socioeconomic influences. What is important to know has moved goal posts, digital technology has moved faster than educational evolution,

and the ability to personalize learning in an anywhere/anytime model is part of everyday practice in education and employee training.

Perhaps then, the path forward involves greater "dis" – disagreement, disruption, and discussion. Trininic et al. (2018) state that

> instead of designing only for agreement, designing for and documenting disagreement may provide a critical examination of the boundary conditions—a necessary step in advancing learning theory. What might it look like to design for disagreement? Our tentative suggestion is that providing a safe space for members to question the practices of the community would naturally throw up more instances of failure to reach consensus across all the dimensions—knowledge, practices, and identities. (p. 625)

The FOLC model posits one approach to meet the needs of learners in our digital future. Working together, learning together, and identifying and solving problems collaboratively, can only improve learners' critical thinking, cognitive abilities, social skills, and by extension, the overall human condition. Future research directions include a deeper interrogation of the role that AI may play in learning environments, a deconstruction of power dynamics in educational systems, a simultaneous rebuilding of more democratic digital learning spaces, and the application of social justice frameworks to create fully accessible online experiences. While we recognize the formidable challenges ahead, we argue that a post-pandemic world offers great opportunities to level the playing field, to re-examine the critical juncture of culture, language, power and privilege, to acknowledge and celebrate the role of affect in human learning, and to honour the ideology that embraces learning as a fundamental human right.

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Chapter 3

Bridging the Divide: Mentorship's Impact on the Pathway to Neurosurgery and Equity

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Abstract

The value of mentorship, rooted in history and now vital for medical education and residency, offers guidance in shaping students' careers. Evolving from private sectors in the 1970s to medical schools in the 1990s, the essence of mentorship fosters dynamic, personalized relationships, enhancing learning, personal growth, and career choice. Diverse mentor-mentee models exist; mentors can be faculty, residents, or peers. They aid in transition, professional networking, and specialty choices, playing pivotal roles in residency applications. While barriers exist, mentorship's significance is unwavering. In surgical specialties, mentorship is crucial for competitive residencies, fostering interest and confidence. However, diversity issues persist, with disparities in matching and post-match dismissals, especially for minority applicants. The narrative ends with a call for a transformative, inclusive medical

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community where mentorship transcends boundaries, paving the way for all medical professionals, free from bias and discrimination.

Keywords: mentorship, medical student, resident, residency, surgery, neurosurgery

Introduction

Mentorship is a timeless concept deeply rooted in the annals of history, with its origins dating back to Homer's Odyssey, where the word "mentor" first took shape (Panagiotakopoulos, 2022). Over the decades, mentorship has evolved into a crucial professional development pillar, particularly for those embarking on the arduous medical education and residency journey. In this narrative, we traverse the landscape of mentorship, uncovering its transformative power for medical students as they navigate the labyrinthine corridors of medical education and embark on the path to residency. This chapter extols the virtues of mentorship, explores its diverse forms, and lays bare the profound impact mentors can have on their mentees, ultimately shaping their career trajectory.

Mentorship

In the United States (US), mentorship started officially in the 1970s within the private sector and was adopted into the medical profession in the 1990s (Frei, 2010). Over the years, mentorship has been recognized as highly beneficial to any career advancement, supported by numerous peer-reviewed articles and studies. The National Academy of Sciences defines *mentorship* as "a professional, working alliance in which individuals work together over time to support the personal and professional growth, development, and success of the relational partners through the provision of career and psychological support" (National Academies of Sciences, Engineering, and Medicine, 2020). Mentorship can be crucial in medical school and the path toward residency. It is a valuable resource that substantially enhances a student's learning experience, personal growth, and career choice. Medical schools started implementing focused mentor-mentee programs to help students navigate medical education's challenges, complexities, and nuances. Today, various mentor-mentee relationships exist in medical schools (Figure 1).

Various models of mentoring exist within medical programs. A systematic review conducted to analyze mentorship in US medical schools identified the dyad model as traditionally being the most common (Farkas et al., 2019). Group mentorship, wherein faculty members would be with groups of medical students, was also frequently used. Some programs used a tiered model with a combination of students, faculty, and residents as mentors (Farkas et al., 2019).

A successful mentor-mentee relationship is dynamic and requires active engagement from all individuals involved. A systematic review of mentorship in academic medicine described the roles of mentors and mentees in sustaining an effective relationship (Sambunjak, Straus, Marusic, 2010). The review described an ideal mentee as someone passionate about their career who takes the initiative to cultivate an effective relationship with their mentor. The mentor was honest, reliable, and recognized the mentee's potential. A successful mentor-mentee relationship is more importantly defined by their mutual ability to relate and connect (Sambunjak, Straus, Marusic, 2010); compatibility on a personal level is also crucial as differences in values can weaken such relationship (Sanfey, Hollands, Gantt, 2013). Aside from being formalized, mentorship can take various forms, including academic, clinical, research, and career-oriented. It all depends on the interests and goals of the student and can ultimately shape their path toward residency. A good mentor will help students weigh their options and utilize their resources. Therefore, finding a congenial match is crucial.

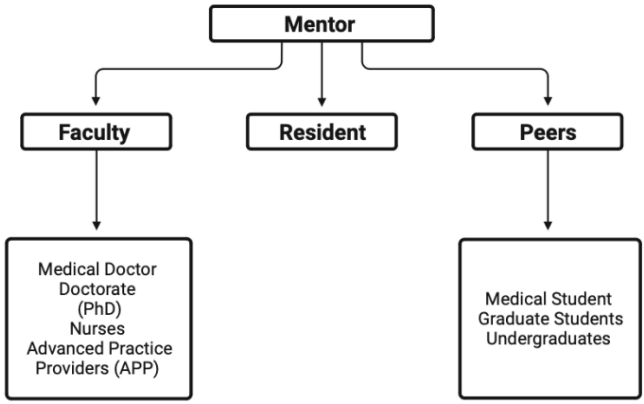

Figure 1. Types of mentors and areas of mentorship.

Mentors can be anyone from faculty, residents, and attendings to peers. Mentees are likely to develop several mentoring relationships throughout their medical education. Residents and attending physicians can facilitate guidance in clinical skills and enhance preparedness to transition from medical students to doctors (Dalgaty et al., 2017). They can also help students with professional networking and making connections, which can make critical differences in specialty choice and career advancement (Williams, 2020). Transitioning to residency is an enormous step and often quite a challenging one. Faculty can provide enhanced academic and research-based guidance, fostering a positive outlook for academia and encouraging mentees to utilize research in ways that can advance their careers (Chang and Ramnanan, 2015) (Dimitriadis et al., 2012). Medical students can be mentors, whereas a senior student mentors a junior student. This allows mentees to explore hidden resources and navigate aspects of medical education through the lens of someone who has been in their shoes more recently. They can offer insight into life as a medical student, given their relatable experience in the same training process, and it will likely offer a more comfortable mentoring relationship for most students. Additionally, they can provide valuable support for the demanding residency application process (Nimmons, Giny, and Rosenthal, 2019).

Mentors can significantly influence their mentees' choice of specialty. Students often reevaluate their residency and career choices in medical school, and guidance provided by mentors can be pivotal in their decision-making (Sambunjak, Straus, Marusic, 2010). Numerous factors are considered while making specialty choices on the path toward residency. A mentor who knows their mentee well can help delegate between choices. They can also help the students get exposure to unexplored specialties if they see fit. The contribution of mentors, especially in the residency match process, is invaluable, as they can advocate for and endorse their mentees beyond their institution (Rodoni, Eyrich, and Fessell, 2020).

How to Find a Mentor

Students should establish short-term or long-term goals before taking the initiative to find a mentor. They should also do their research and familiarize themselves with the faculty at their institution. Many considerations can and should be made before choosing a mentor. The mentors should complement their mentees' values, understand their goals and expectations, and be able to accentuate their potential adequately. Gender-specific choices are also

frequently considered while looking for mentors. Research suggests that male mentors could be less effective in supporting women's careers than female mentors, although solid evidence is lacking (Ochberg, Barton, and West, 1989). For some students, a same-gender-identifying mentoring relationship may provide a comfortable space. Nonetheless, impactful advice related to work-life balance and career advancement can be obtained irrespective of the mentor's gender identity.

Utilizing resources provided by their school can help students make the right connections. Some institutions have formalized programs that automatically assign a mentor. If such programs do not exist, they could also start by asking fellow students who have been through the process before, talking to professors for recommendations, looking into sponsors for usually student-run organizations, or reaching out to residents or physicians directly. Students can also look for mentors outside their institution if they desire. For example, Carter et al., performed a comprehensive literature review within the field of neurosurgery regarding all current and available opportunities for mentorship and career resources for medical students (Carter et al., 2023). Once a mentor is identified, effective communication is the cornerstone of any mentoring relationship. Therefore, the mentee must comprehend the demands and responsibilities of their potential mentors before solidifying their expectations. A framework for communication should exist to ensure the mentor and mentee understand each other's expectations. Ultimately, both parties must commit to the process and foster the relationship.

Barriers in Mentorship

Medical education is dynamic and rapidly evolving, with changing complexities in career pathways. Therefore, advice that was relevant just a few years ago may be irrelevant today (Singletary, 2005). The competitive environment of the residency process may create situations where students need help securing mentors in their prospective field. The high demand and oversaturation of students interested in the same specialty can lead to a depletion of resources on the mentor's behalf. Being a mentor is an unpaid additional title that requires time and attention from the mentor. Mentors are not an endless well that can pour into every student who solicits their services. Busy schedules of faculty and clinicians can heavily impact a mentoring relationship.

Additionally, mentorship readiness can profoundly impact the efficacy and productivity of the mentor-mentee relationship. The literature identified several challenges in medical school mentorship. To illustrate, Neumayer et al., indicate that exposure to female surgical mentors significantly impacts female students' decision to pursue a surgical career (Neumayer et al., 2002). However, many students lack access to available female mentors, which may lead them to consider alternative career paths (Faucett et al., 2017) (Neumayer et al., 2002). Underrepresented minority students reported limitations in the number of mentors who can relate to their unique experiences (Farkas et al., 2019) (Johnson et al., 1998). Also, there appears to be a glaring disparity in the accessibility of mentorship resources between students of institutions with heavy endowments, extensive NIH funding, and social capital compared to their counterparts from other institutions. These barriers create further obstacles that make the arduous journey of medical school even more austere.

Surgical Specialties Mentoring

Surgical specialties are becoming more sought after by medical students as residency applications are surpassing the number of available positions (NRMP, 2023). Surgical residencies are relatively competitive. Thus, quality mentorship in medical school is monumental to the match process. Establishing formal mentoring organizations for surgery in medical school can surpass some barriers that students might otherwise face. Additionally, it provides an opportunity for any student to gain exposure to the complexities of surgical specialties, foster interest in pursuing a career in surgery, and increase confidence. A cross-sectional observation study by Elhawary et al., reported that most mentoring relationships in surgery were initiated during the first two years of medical school. Elhawary et al., analyzed that students preferred surgical mentors of the same gender, likely for more relatable career advising. Both mentors and mentees reported time limitations as a hindrance. At the same time, students strongly identified the lack of interest on the mentor's part as the primary obstacle to maintaining a beneficial relationship (ElHawary, 2022). Due to their updated perspectives on the application process, programs, and research opportunities, students may find valuable guidance from surgical residents. Medical students without a home residency in their desired surgical specialty may limit their access to faculty, residents, and research opportunities. Students in such situations can still gain mentors through interest groups and chapters at other schools, summer internships, and

local practices. Initiative, persistence, and determination on the mentee's behalf are required to persevere. Ultimately, students can use these relationships to their advantage when selecting a surgical residency program and successfully matching into their chosen specialty.

Mentoring in Neurosurgery

While notable progress has been achieved in promoting gender diversity within certain surgical specialties (e.g., neurosurgery), these specialties still grapple with a noticeable dearth of various dimensions of diversity (Wang, 2021; Bedolla, 2020). Over recent years, there has been a gradual upswing in the proportion of female residents in certain specialties, such as neurosurgery (approaching nearly 20%) (AAMC, 2020). However, it is crucial to highlight that the representation of Black, Indigenous, and People of Color (BIPOC) among neurosurgical residents remains strikingly low, with less than 5% inclusion (AAMC, 2020). In response to these concerns, the J*ournal of Neurosurgery (JNS)* took a proactive step by publishing a white paper that outlines a paramount objective; increasing underrepresented populations in neurosurgery (URN) among incoming neurosurgical residents and faculty to a minimum threshold of 20% (Kim, 2021; Benzil, 2008).

As a result, training programs' desire to increase the presence of underrepresented people in neurosurgery has gained significant traction over the last few years. New traction in space illuminated a long-standing issue: Black applicants were matched at a lower rate than non-Black applicants. Of 1780 applicants from 2017 to 2020, 439 identified as female while 1341 identified as male. Of these 1780 applicants, 128 identified as Black and 1652 as non-Black. Male and female applicants matched at similar rates ($p = .76$). Black applicants matched at a lower rate than non-Black applicants ($p < .001$).

The discrimination that happens after Black residents after the match is missing from this conversation. A STAT investigation revealed that in 2015, Black residents, constituting about 5% (AAMC, 2020) of all residents, comprised nearly 20% of those dismissed (ACGME, 2019). This significant disparity in dismissal rates has long been concealed and overlooked.

Consequently, many Black physicians have been prevented from entering lucrative, predominantly white specialties like neurosurgery. Despite the increased number of residency spots nationally, these fields have struggled to achieve meaningful diversity within their ranks (Boyle, 2021). According to the literature, neurosurgery isn't the only surgical subspecialty with such

disparities; orthopedics, urology, and plastic surgery face similar issues (Dielubanza, 2023) (Day, 2019) (Hernandez, 2022).

In every field examined, including historically more inclusive toward Black physicians like family medicine and pediatrics, the analysis revealed that Black residents faced higher dismissal rates than their white counterparts. Within the field of surgery, 12% of Black residents were dismissed in 2015, whereas only 2% of white residents were dismissed (ACGME, 2019). However, it is worth noting that ACGME officials advised caution in interpreting these findings due to the small number of Black trainees. In the more exclusive medical specialties, the situation appears even more concerning. A 2020 study discovered that individuals from underrepresented medical groups account for 6% of orthopedic surgery residents but up to 17% of those who were dismissed (McDonald, 2020). In neurosurgery, attrition rates sometimes exceed 20% (McFarling, 2022), as reported by Owoicho Adogwa, an assistant professor of clinical neurosurgery at the University of Cincinnati and co-founder of the American Society of Black Neurosurgeons. Unfortunately, only a few of those who leave neurosurgery training programs manage to secure positions in new ones, often leading them to switch to other non-surgical specialties or even leave the medical field entirely, all while burdened with significant medical school debt.

Conclusion

In medical education and the quest for residency, mentorship emerges as a guiding light, a beacon of wisdom that traces its origins to antiquity and continues illuminating the path forward. In this chapter, we weaved together the rich tapestry of mentorship, showcasing its historical significance, modern manifestations, and the invaluable influence it exerts on the lives of medical students and residents. Whether provided by faculty, residents, attending physicians, or fellow students, mentorship's potency is undeniable. It equips students with the tools to make informed career choices, overcome residency challenges, and ultimately mold their futures. However, this narrative transcends the general discourse to confront a stark reality within the medical community. The underrepresentation of minority groups in surgery exposes deeply rooted disparities. The systemic challenges minorities face, from the match process to high dismissal rates, are stark reminders of their uphill battle. In the grand symphony of medical mentorship, this passage ends on a somber note, calling for an urgent transformation in how diversity is embraced and

nurtured within the medical community, particularly in the exclusive realms of surgical specialties.

In a world that demands inclusivity and equality, mentorship must extend its reach to all, transcending boundaries of race, background, and geographical location. Only through such a commitment to equity can future generations of medical professionals thrive, irrespective of their specialties, breaking free from bias and discrimination. Mentorship, after all, is a pact between the past and the future, where wisdom and guidance are passed on to those poised to make their mark on the world of medicine.

Disclaimer

None.

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Chapter 4

Analysis of the Interrelationships between Experiential Learning and Digital Learning

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Abstract

In the digital age, where society is interconnected through technological tools that transcend geographical boundaries, higher education institutions play a crucial role. They must be in tune with the rapid transformations brought about by the digital revolutions shaping our society. Digital learning opens up an unlimited field for students to explore and build new knowledge. This implies that universities have educational practices that are aligned with this reality, encouraging student autonomy and reflection. Experiential learning, which is based on making sense of experiences, plays a fundamental role in this context. It integrates the cognitive capacity of learners and their ability to think, feel and perceive the learning space, establishing a unique synergy between time and space. Although experiential learning is widely recognized and studied in face-to-face teaching environments, there is a significant gap in understanding how it relates to the digital environment. Therefore, the purpose of this article is to examine the connections between digital learning and experiential learning. To achieve this objective, a systematic search was conducted in both the Web of Science

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and Eric databases. The scoping review followed the PRISMA methodology. Among the primary technological tools studied, virtual reality, augmented reality, flipped classroom, and gaming are linked to experiential learning. In summary, the articles analyzed show that digital and experiential learning are intertwined, and digital learning brings tools and practices that enhance experiential learning, such as computer simulation, virtual reality, augmented reality and games. In terms of the professional training pathway in higher education, such applications can offer an informative and dynamic learning environment, facilitating the creation of a professional practice setting for the development of complex skills and self-regulation of learning from an experiential education perspective. The concept of experiential learning, coupled with digital learning opportunities, establishes a robust theoretical foundation for the advancement of hybrid and innovative learning environments in today's educational context.

Keywords: digital learning, digital education, experiential learning

Introduction

Digital transformation processes are causing unprecedented changes in all areas of society, with important implications for education and higher education. Rapid technological growth is leading to the introduction of new digital technologies in the classroom and, most importantly, new ways of teaching and learning.

The so-called 4.0 education is a new educational paradigm, with an approach centered on students and their experiences, characterized by the intensive use of educational technologies and the ubiquity of teaching and learning (Pacheco, Santos and Wahrhaftig, 2020). Digital learning goes beyond the physical school walls and uses digital technologies that can facilitate learning experiences, allowing learning to take place at any time and place, with greater flexibility and interactivity.

Talking about experience in education is not a new topic. As early as 1959, the empirical philosopher John Dewey addressed the issue, pointing out that the problem with schools was not the lack of experience, but the quality of experience (Dewey, 1959). In Dewey's view, to be considered educational, experience must simultaneously lead to knowledge, to more facts and ideas, and to a better ordering of them (Dewey, 1959). Digital learning opens up a range of possibilities in terms of educational experiences, and it becomes fruitful to examine them in conjunction with experiential learning theory.

Experiential learning (EL), which has a constructivist philosophical basis and is rooted in active learning, has been described in the academic literature as a powerful way for learners to develop new knowledge (Kolb, 1984; Wilson; Beard, 2013). It involves a meaning-making process that integrates meaningful experiences that act, to varying degrees, as sources of learning, integrating the learner and their 'inner world' with the 'outer world' of learning (Wilson; Beard, 2013).

In this way, this chapter brings together the theory of experiential learning and digital learning, with the intention of analyzing their interrelationships. EL came to prominence, in particular, with the studies of David Kolb in 1984. In the face-to-face educational model, the theory has been supported by numerous studies. The purpose of this Chapter is therefore to analyze how the framework of experiential learning theory is used in the scientific literature on digital learning in higher education. A scoping review was carried out, based on the PRISMA method by Tricco et al. (2018).

This Chapter is organized into five sections. In addition to this introduction, the second section presents a theoretical exposition of the digital learning and experiential learning constructs, the third section details the methods adopted, and the results and discussion present the findings. The paper ends with conclusions and the used references.

Literature Review

Digital Learning

Education has long been associated with providing people with knowledge and practical learning experiences in order to make them active and competitive members of society, thus ensuring greater sustainability of society. Questions about how best to acquire, transfer, collect, and structure knowledge, skills, and attitudes have been part of society much earlier than questions about educational pedagogy (Dreimane, 2019). Currently, learning is seen as an engaging way to provide learning experiences that allow students to develop skills and competencies across different cognitive, emotional, and psychomotor functions.

This rethinking of the learning process has been proposed by cognitive theories that include areas of knowledge related to cognition, thinking, information processing, and problem solving. This so-called cognitivist

pedagogy advances the future of education by emphasizing that learning is a cognitive process. It starts from a constructivist pedagogical orientation that takes into account the role of the teacher. In this context, the teacher is seen as a facilitator whose goal is to increase students' understanding of the subject by giving them opportunities to express their ideas and perceptions. In this pedagogy there are five basic areas: Neurodidactics, Neuroeducation, Memetics, Pedagogical Anthropology, and Media Pedagogy (Siemieniecka & Siemieniecki, 2016).

Neurodidactics includes issues related to research and practice in the field of education, which aim to optimize teaching activities in order to achieve their goals. Neuroeducation is an area of Cognitive Pedagogy that deals with the regularities, mechanisms, and potentials of human development, all of which are explained by Neuroscience. The knowledge of information processing in the brain is then used to induce intentional and conscious changes in the human personality.

Memetics is a branch of Cognitivist Pedagogy based on the theory of cultural evolution, which posits the existence of units of cultural information called memes (used to describe a concept of images, videos, gifs, and/or related to humor). Pedagogical anthropology is a branch of Cognitivist Pedagogy that approaches human beings as creatures capable of being educated and in need of education.

Media Pedagogy deals with human beings and media-based communication, with its multidimensional analysis of the mechanisms of learning and education instigated by the impact of media on human beings. Therefore, it can be said that Media Pedagogy is concerned with human communication with and through the media. As such, it covers five areas of general education: media in social communication, media education, information technology, computer diagnostics and pedagogical therapy, and media in the human world, dealing with various bio-socio-cultural circumstances and civilizational aspects of media use in the learning process (Siemieniecka & Siemieniecki, 2016). In this context, there is digital learning, which can be considered as any instructional practice that effectively uses technology to enhance students' learning experience (Siemieniecka & Siemieniecki, 2016).

Digital learning is a popular and rapidly advancing learning method for teaching and learning in education. It provides learning content to enhance students' individual knowledge and skills and effective teaching methods through a variety of modalities using information and communication technologies, such as learning assisted by mobile computer, (Guze, 2015;

Holzberger, Philipp & Kunter, 2013) which applies mobile devices such as smartphones and tablets to facilitate education and learning. Digital learning consists of digital instructional materials (e-books, digital data, and content provided in digital format), digital tools (computers and smart devices), and digital delivery (internet), which are provided in an integrated manner (Hwang, Shim, & Cheon, 2023).

Experiential Learning

Learning through experience is part of the natural human learning process. Dewey, an American pragmatic philosopher, argued strongly for experience as the core of education. According to Dewey (1959, p. 83), education is a phenomenon that emerges directly from life in a process of "reconstruction and reorganization of experience" that enables us to shape future experiences.

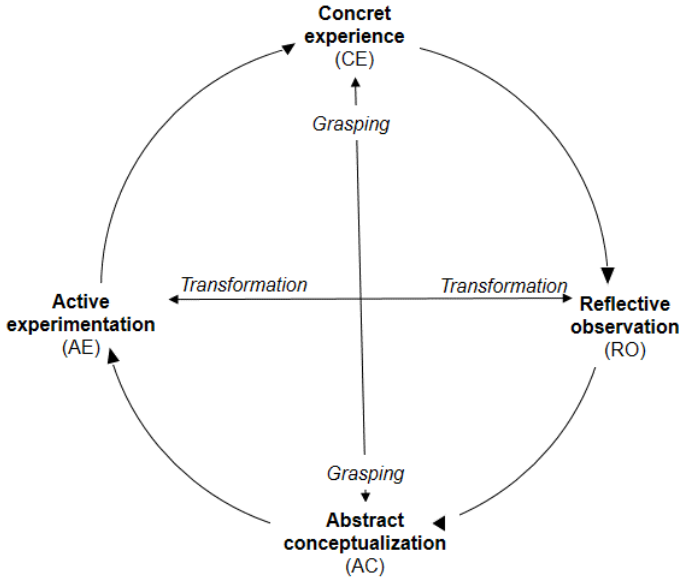
In the field of education, however, not all experiences lead to learning. Rather, they must have the cognitive potential to lead the learner to new perceptions of the situation. Experiences become meaningful when they involve perception, analysis, and inquiry and lead individuals to acquire new knowledge, which in turn leads to new experiences (Westbrook et al., 2010).

One of the most important scholars of experiential learning (EL) is David Kolb. Kolb's theory sees learning as the transformation of experience into knowledge (Kolb, 1984, 2014). It assumes that learning takes place not only at the cognitive level, but from a holistic perspective that integrates experience, perception, cognition, and behavior (Kolb, 2014). Thus, it also involves the synergistic transactions of the person with the environment, their internal personal characteristics, and those of the external environment, in a mutual process of development and knowledge of personal and sociocultural origin (Pimentel, 2007).

Kolb (1984) established the Experiential Learning Cycle (ELC) (Figure 1) with four adaptive learning models based on the *grasping of experience* (concrete experience (CE) and abstract conceptualization (AC)) and two dialectical relationships of *transformation of experience* (reflective observation (RO) and active experimentation (AE)). Each component of the ELC is described below (Kolb, 1984; Pimentel, 2007):

- Concrete Experience (CE) – is derived from an experienced activity, situation or event and provides the basis for reflection.

- Reflective Observation (RO) – involves reflection with identification of elements, associations, perceptible facts of the experience, characteristics and difficulties of choices, and sharing of learning.
- Abstract Conceptualization (AC) – is the formation of abstract, generalizable concepts about the elements and characteristics of the experience. Uses theory and reasoning to create new abstract concepts.
- Active Experimentation (AE) – Action takes place. New knowledge is tested and put into practice and can serve as a guide for new experiences.



Source: Kolb (1984).

Figure 1. Kolb's experiential learning cycle (ELC).

The dialectics of *Concrete Experience versus Abstract Conceptuali-zation* and of *Active Experimentation versus Reflective Observation* indicate opposing adaptive orientations, and depending on the stage, the learner moves from observer to actor, in an analytical engagement and detachment. From this perspective, learning also emerges from tension and conflict, as it involves dialectically opposed ways of adapting to the world that drive the learning process (Kolb, 1984, 2014).

According to Kolb (1984), the process of knowledge creation involves grasping and transforming experience. Through grasping, information is received and experience is owned. The transformation of experience involves how individuals interpret and act upon this information.

The method that will guide the bibliographic research is presented below.

Method

This bibliographic research uses a systematic approach and is characterized by being a scoping review (Tricco et al., 2018). According to Tricco et al. (2018), this type of review is indicated to obtain a synthesis of knowledge with the potential to provide evidence on a specific topic, its concepts, applications, and research gaps.

To ensure the replicability and transparency of this study, the guidelines of Tricco et al. (2018) were followed by adopting the checklist described in the document *Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews for Scoping* (PRISMA-ScR).

With the general objective of analyzing the interrelationships between digital learning and experiential learning, the following specific objectives were defined: a) to identify the context of the research; b) to contextually map the digital learning practices offered; and c) to analyze how experiential learning has been applied by the publications reviewed, in the context of digital learning.

The systematic search process used Web of Science as a database because of its scientific backing and multidisciplinary nature, as well as its peer review process. The Eric database was also included because it is specific to the field of education, making its inclusion appropriate. Keywords and Boolean operators were used as shown in Table 1.

The inclusion criteria were: a) peer-reviewed articles; b) the descriptors should appear in the title, abstract or keywords; c) without chronological delimitation; d) related to the research topic. The criteria for excluding articles were defined as: a) books and conference papers; b) articles not related to the research objectives; c) full access to the article not available, either through the database itself, by contacting the authors, or through parallel platforms such as Google Scholar, Research Gate, and Emerald Insight; and d) works aimed at basic levels of education.

Table 1. Boolean search equation and analysis criteria

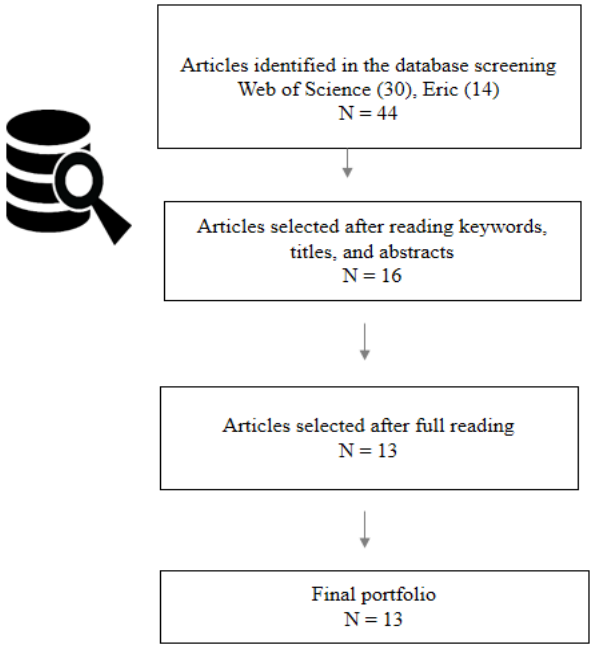
Boolean equation for base searches	
"experiential learning" or "experiential education" or "experiential theory" or "learning through experience" (Topic) and "digital learning" (All Fields) and Article (Document Types)	
Inclusion criteria	**Exclusion criteria**
a) peer-reviewed articles; b) the descriptors should appear in the title, abstract or keywords; c) no chronological delimitation; d) related to the research topic.	a) books and conference papers; b) articles not related to the research objectives; c) full access to the article not available, either through the database itself, by contacting the authors, or through parallel platforms; d) works aimed at basic levels of education.

Source: Prepared by the authors (2023).

The databases were consulted in May 2023 and returned a total of 44 articles (Figure 2). First, the articles were exported to the Rayyan platform (Ouzzani et al., 2016), which allowed a double-blind analysis of the title, abstracts, and keywords. A coincidence rate of 40% was achieved between the two researchers involved in this phase. Differences were resolved in an online meeting with discussion of the conflicting articles. The total number of articles forwarded for full reading was 16. At this stage, all data were transferred to an Excel® matrix, which allowed the analytical process to identify titles, abstracts, authors, source, year, keywords, country, context, digital learning practice, and approach to experiential learning.

Of the total number of documents to be read, four articles were inaccessible and there was no success in contacting the authors or searching on other search platforms. Two articles were eliminated because they presented a vague approach to EL. The analysis looked for similarities, patterns, and differences, following the conceptual organization proposed by Torraco (2016). The final portfolio of articles consisted of 13 articles.

The following section first provides an overview of the portfolio of studies, and then addresses the discussions that emerged from the synthesis of knowledge.



Source: Prepared by the authors (2023).

Figure 2. Procedures flowchart.

Results and Discussion

The first publication in the portfolio of articles in this review dates back to 2009, with the research by Yueh and Sheen (2009) on flipped learning labs. There is a relative homogeneity in the number of publications from 2009 to June 2023, with a variation of one to two articles per year. However, there were also periods with no publications, such as 2010-2011, 2014-2016, and 2019-2020.

The sources of publications are varied, and the journals with at least three publications are: *British Journal of Education Technology* (5), *Interactive Learning Environments* (4), and *Interactive Technology and Smart Education* (3).

In terms of the nature of the research analyzed, there is a predominance of empirical work, quasi-experimental research with control groups, and quantitative research. Only the article by Chaturvedi et al. (2021) is purely theoretical.

Table 2. Portfolio of articles

Title and year	Authors	Digital learning practice	Target audience
An Experiential Learning Perspective on Students' Satisfaction Model in a Flipped Classroom Context (2017)	Zhai, X. S; Gu, J. B.; Liu, HF; Liang, JC; Tsai, CC	Remote learning	University students
Assessing the effectiveness of a computer simulation for teaching ecological experimental design (2009)	Stafford, R.; Goodenough, A. E., Davies M. S.	Computer simulator	Biology
Developing a self-regulated curricula of scaffolded academic and information literacies in a digital learning environment (2018)	Nallaya, S.; Delaney, B. L.; Savelsberg, H.; Lancione, C	Remote learning	Social Work and Social Sciences
Developing and Implementing a Framework of Participatory Simulation for Mobile Learning Using Scaffolding (2013)	Yin, C. J.; Song, Y. J.; Tabata, Y.; Ogata, H.; Hwang, G. J.	Participatory simulations using mobile technologies	Students learning computational algorithms
Developing Experiential Learning with a Cohort-blended Laboratory Training in Nano-bio Engineering Education (2009)	Yueh, H. P.; Sheen, H. J.	Remote learning associated with the laboratory	Engineering
Digital Experiential Learning for Sustainable Horticulture and Landscape Management Education (2022)	Kee, T; Zhang, H	Virtual Reality (VR) and Augmented Reality (AR)	Horticulture and Landscape Management
Effective Teaching Practices for Success During COVID 19 Pandemic: Towards Phygital Learning (2021)	Chaturvedi, S; Purohit, S; Verma, M	Remote Learning	Business School

Title and year	Authors	Digital learning practice	Target audience
Fantastic Learning Moments and Where to Find Them (2018)	Sheng, A. Y.; Sullivan, R; Kleber, K; Mitchell, PM; Liu, J. H.; McGreevy, J; McCabe, K; Atema, A; Schneider, J. I.	Remote Learning	Medicine
Fostering complex professional skills with interactive simulation technology: A virtual reality-based flipped learning approach (2023)	Lin, H. C.; Hwang, G. J.; Chou, K. R.; Tsai, C. K.	Virtual Reality	Medicine
Inside Trees: Summer Camp and Remote Learning for Increasing Awareness and Enrollment in Bio-Based Materials Degree Programs (2022)	Cerv, S. A.; Zink-Sharp, A.	Remote Learning	Biotechnological Materials Sciences
Perceptions and factors affecting the adoption of digital games for engineering education: a mixed-method research (2023)	Udeozor, C; Russo-Abegao, F.; Glassey, J.	Digital games	Chemical Engineering
Preparing students for the future through developing evaluative judgement (2021)	Naidoo, O.; Tai, J.; Penman, M	Remote Learning	Health (unspecified)
When a classroom is not just a classroom: building digital playgrounds in the classroom (2012)	Chen, G. D.; Chuang, C. K.; Nurkhamid; Liu, T. C.	Digital games based on mixed reality	English

Source: Survey data (2022).

Contexts and Practices Aimed at Digital Learning

The educational level focused on in this literature review is higher education. In the articles where the study courses were specified, it was observed that they were quite diverse and involved students from higher education courses in Biology, Biotechnological Materials Sciences, Nursing, Chemical Engineering, Landscape Management, Horticulture, Medicine, Social Work, and Social Sciences (Table 2).

The research context with the highest number of studies is health (3). One of the possible explanations is the facilitation of health teachers' support activities provided by digital learning resources (Sheng et al., 2018). These teachers are often unable to fully accompany their students in real clinical work. Moreover, in the context of experiential learning theory, certain digital learning resources can stimulate the development of students' autonomy and self-regulation in relation to their own learning processes (Naidoo et al., 2020) and even facilitate the repetition of real clinical scenarios (Lin et al., 2023).

In the corpus of articles analyzed, it is possible to categorize three practices (Figure 3) aimed at digital learning: 1) remote learning strategies (blended learning, flipped classroom, online courses, and virtual learning support environments); 2) digital games; and 3) simulations and immersions.

The *remote learning practices* category includes research on hybrid teaching formats (Nallaya et al., 2018), either as a strategy to attract new students to courses or to support student learning in physical environments (Yueh & Sheen, 2009) through the provision of digital platforms. Nallaya et al. (2018) look at the experiences of first-year students in Social Work and Social Sciences courses and the digital co-curricular provision of courses aimed at academic literacy (writing and research) and information literacy (type of information, quality, source) for students. The aim is to reduce the disparity in students' language levels and, at the same time, to address the difficulty for teachers to provide individualized assistance to students. The digital environment created encourages self-regulation of learning by the student as well as continuous learning. In this sense, the work of Sheng et al. (2018), aimed at medical students and postgraduates, also addresses a digital learning environment, but with a focus on creating a repository of students' own experiential learning moments. In another context, Yueh and Sheen (2009) bring the experience of incorporating e-learning methods to support face-to-face practical learning in cohort-blended laboratory training in nanobioengineering education, combining laboratory learning instruction with peer learning (Yueh & Sheen, 2009).

The educational scenario brought about by COVID-19 is addressed in two papers (Cerv & Zink-Sharp, 2022; Chaturvedi et al., 2022). Cerv and Zink-Sharp (2022) address the strategy adopted as an alternative to a summer camp aimed at increasing the number of female and underrepresented minority students in Bioengineering Materials Science courses. During the pandemic, the distance learning strategy expanded opportunities for participation and took on a self-directed and ubiquitous character. In the article by Chaturvedi et al. (2022), the authors examine the abrupt shift to online education as a result of the COVID-19 pandemic. These authors have developed a theoretical framework for online education based on three critical factors: social element (students' ability to project their characteristics), cognitive element (making sense through sustained communication), and instructional element (design of the educational experience). These three elements facilitate the educational experience for the participant (Chaturvedi et al., 2022).

The second category includes research that focuses on digital learning through *digital games*. They can provide authentic and active learning experiences for Engineering disciplines, and are beneficial for facilitating learning, especially in situations where access to a real industrial environment is limited for learning in the field (Udeozor et al., 2023). Chen et al. (2012) explore the benefits of virtual reality educational games for English language learning in the classroom.

The category of *simulations and immersions* includes research on computer systems simulation and immersive technologies such as virtual reality (VR) and augmented virtual reality (AR). Stafford et al. (2009) analyze the effectiveness of a computer simulation, the Virtual Rocky Shore (VRS), based on peer-reviewed scientific knowledge. The simulation was created to facilitate rapid, student-centered learning in the biological sciences. With such an application, the design of biological experiments considered fundamental to learning becomes less costly and less time-consuming. Yin et al. (2013) use mobile technologies combined with context-sensitive simulations with a scaffolding approach. In this approach, scaffolding deals with assistance aimed at developing learner autonomy, which in the case of Yin et al. (2013) is aimed at improving student performance in the area of computational algorithms.

In *immersions*, VR places users in structured virtual environments with high-fidelity graphics and interactive content, while AR adds virtual elements to the vision of reality (Kee & Zhang, 2023). Focusing on horticulture and landscape management courses, Kee and Zhang (2023) believe that VR and AR facilitate the creation of learning environments that depend on field trips

and real-world contexts, thus meeting the needs for customization, sustainability of teaching strategies, and non-tolerance of accidents and mistakes in real life. Li et al. (2023) demonstrate the importance of VR and AR in performing real-life clinical scenarios, providing opportunities for repetitive practice of complex medical skills, as well as immediate feedback from VR-based learning systems.

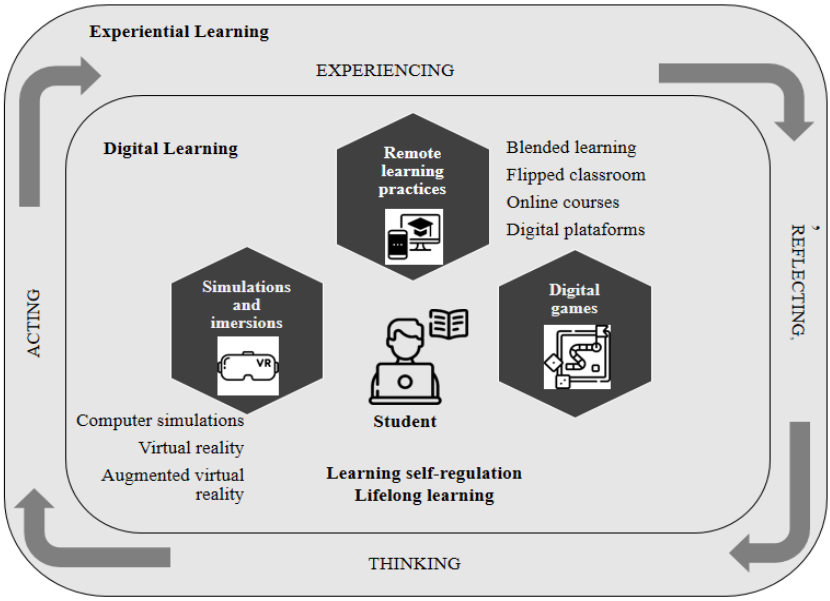
Experiential Learning as a Theoretical Background

In the theoretical field of experiential learning, some of the main theories referenced by the researchers analyzed are Kolb's studies (1984, 2014), including the Experiential Learning Cycle (Chaturvedi et al., 2021; Chen et al., 2012; Kee & Zang, 2022). An analysis of the works shows that digital learning technologies have the potential for the practice of experiential learning and for integrate professional and technological knowledge (Lin et al., 2023) (Figure 3).

Immersive technologies, whether based on virtual reality, augmented virtual reality, or computer simulation, meet one of the requirements of experiential learning to provide educational experiences that, in the cases studied, are immersive and bring students closer to practice. One of the advantages, especially for professional courses that depend on laboratory work and field trips (Kee & Zhang, 2022), is the benefit of simulation and the creation of immersive environments. This can help reduce costs and the risk of accidents, optimize time, replicate situations, preserve the environment, and help in cases where access to the real professional environment is limited (Kee & Zhang, 2022, Udeozor et al., 2023).

Despite the variety of applications and contributions perceived to experiential learning, digital learning technologies also pose pedagogical challenges for educators. One of them is achieving the completeness of Kolb's ELC (Kolb, 1984) stages through experiential practices. The research by Kee and Zhang (2022) reports difficulties in two specific stages of Kolb's ELC: reflective observation and abstract conceptualization. When using VR for simulation in higher education courses in the environmental field, these authors claim that although there are all the advantages and possibilities of its application, it cannot be considered as a real EL, because challenges remain in the execution of these two stages of Kolb' ELC. In contrast, when dealing with a digital platform created to allow medical students to record their learning moments in hospital practice, Sheng et al. (2018) consider that the

reflective observation and abstract conceptualization stages of Kolb's ELC are addressed in a tangible way, serving as a source of self-directed and peer-shared learning.



Source: Prepared by the authors (2023).

Figure 3. Connections of Experiential Learning with Digital Learning.

The difficulties encountered in conducting the ELC may indicate the need for adaptation or new instructional processes to fully consider the transformation of experience into learning, whether in fully online or hybrid learning environments. In the theoretical conception of Kolb (1984), learning is not separated from reflective processes; otherwise the ELC is interrupted.

Another point that emerges from the analysis of the articles is the need to develop students' ability to self-regulate their own learning (Cerv & Zink-Sharp, 2022). Digital learning opens up a wide range of possibilities that require a certain degree of student autonomy, self-knowledge, and self-perception. In addition, professional environments are evolving rapidly, which presents educators with the challenge of preparing their students not only for immediate future work, but for a lifelong learning mindset and for living with disruptive technologies on an increasingly frequent basis.

One strategy used by educators to help students with this preparation is the provision of scaffolding, which is helping students when they do not have the necessary skills, according to Yin et al. (2013). For example, the simulation discussed by Yin et al. (2013) applies mobile digital technologies to the learning of computational algorithms, with opportunities for novice students to learn from more experienced students, which also refers to peer learning. The use of such digital technologies can help deepen understanding of abstract concepts more effectively through scaffolding (Yin et al., 2013). Still in this line, the study by Naidoo et al. (2018) deals with evaluative judgment, which is the ability to evaluate one's own work. This concept is related to self-regulated learning and is important for determining students' future improvement needs, as well as for work practice and for identifying the need for new knowledge.

Experiential learning involves immersion and self-direction, resulting in a meaningful experience that supports the acquisition of knowledge that can be applied in future contexts (Chaturvedi et al., 2021). Experiential learning engages students in active learning that expands their knowledge of a discipline through practical application, stimulating the connection of the disciplinary content learned through experience and reflection to a practical application through conceptualization and experimentation (Cerv & Zink-Sharp, 2022).

The analysis of the empirical articles also revealed factors associated with the implementation of digitally enhanced experiential learning, including the motivation and preparation of students and educators. For example, in the evaluation of digital games by students, Cerve & Zink-Sharp (2022) found that students were receptive to the technology for learning, but noted that its use was complementary to the subject content, i.e., the game should not be used as a stand-alone teaching tool. Zhai et al. (2017) recommend "warm-up" activities with students in the flipped classroom, taking into account the differences in their knowledge and experience. This is because, according to the data collected by these authors, the student's previous learning experience is potentially related to their preference for blended learning. Therefore, it is recommended to create personalized configurations that allow students to work at their own pace, and also to provide support to students through scaffolding, the configuration of which can facilitate the advancement of students' conceptual understanding and improve their motivation to learn (Yin et al., 2013).

Conclusion

The main objective of this research was to analyze the relationships between digital learning and experiential learning. It was found that digital learning practices are diverse and can be a fertile field for the development of experiential learning with students from different undergraduate courses. In turn, experiential learning as an educational theoretical basis can provide foundations for structuring new educational approaches that, when combined with digital learning, integrate the virtual and real worlds and lead students to autonomous attitudes toward current and future learning.

To achieve an initial understanding of digital learning, this study maps the digital practices present in the researched studies, which are: remote learning strategies, digital games, and simulations and immersions. However, this categorization only facilitates the academic analysis, as the applications are not competing and, depending on the context, it can be beneficial to use multiple strategies.

In terms of professional development, the use of virtual reality and augmented virtual reality suggests that they facilitate bringing students closer to their future field of work, albeit in a not entirely real way, but solving the problems of experiences that involve risk of realization (such as in the health and engineering fields), high cost, difficulty of repetition or limited access.

It seems that digital applications of experiential learning still face similar challenges to traditional face-to-face education. The first of them is the adaptation of students, who need to be introduced or prepared for learning modes based on a constructivist philosophy in a digital environment and with changing professional scenarios. The introduction of scaffolding and scaffolding activities, the adoption of techniques aimed at self-reflection and peer learning, and the interdisciplinary integration of different learning media are all possible contributions. Another issue concerns the transformation of experience into knowledge, especially the reflective observation and abstract conceptualization of the experiential learning cycle of Kolb (1984), which are stages that require effort on the part of educators to make them attainable by students, whether in the hybrid or purely digital model.

This study also has some limitations. One is related to the keyword search strategy and the selection of databases. Another limitation concerns the analysis process used by the researchers: although it uses protocols for the inclusion and exclusion of articles, this stage can carry the nuances of the subjectivity of human analytical processes. Another point relates to the

number of studies included, which prevented a more in-depth comparison between the different experiences reported.

In terms of future research, given the proliferation of technologies based on virtual reality and augmented virtual reality, studies linking them to experiential learning are suggested. In addition, there was a low incidence of studies focusing on educators facing the challenges of new educational paradigms, especially those related to digital technologies and digital transformation, which open up new ways of teaching and learning.

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Chapter 5

Assessment and Evaluation for a New Age: A Framework Based on Critical Consciousness, Empathy and Metacognition

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Abstract

Rapid transitions in education rarely occur, yet in recent times, the pandemic caused significant shifts in learning foci across sectors very quickly, as individuals and organizations moved to online settings. Teachers, learners, employers and employees were thrust into new learning and work environments, both asynchronous and synchronous, in a broad variety of digital modalities. While the global crisis was tragic, it also created a rare, yet necessary opportunity for educators across sectors to re-examine their perspectives, re-evaluate the full scope of meaningful pedagogy and their ideals of curricula for learning in the 4th Industrial Revolution (World Economic Forum, 2016; World Economic Forum, 2023; Bates 2019a; Bates, 2019b; OECD, 2017). Modes of living and learning changed as learners became more self-directed, using online tools and strategies for "just in time" mobile learning opportunities that allowed people to ubiquitously integrate learning into their school and work lives. Synonymously, individuals and organizations began to question traditional methods of assessment and evaluation, to provide more responsibility for self-directed learning in school and work, and to redefine learning outcomes for the 21 century.

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This chapter interrogates traditional assessment and evaluation strategies, arguing cohesively that old strategies do not fit a new world order. The authors start by unpacking the elements of quality pedagogy that go beyond simply delivering curricula, to strategies that allow for, and encourage, integrating assessment and evaluation in learner-centred and meaningful ways. By challenging old school perspectives on assessment, wherein the evaluative power rests with the teacher or employer, the authors discuss a new model (Marchione, 2022a; Marchione 2022b) that is designed with the learner at the centre, focusing on personalizing both the learning and assessment experience through collaborative dialogue and shared definitions of transformational learning outcomes and expectations. This new framework emphasizes the role of key elements of quality pedagogy: reflective practice, transformational learning, critical consciousness, empathy and metacognition. Finally, the authors discuss practical strategies for implementing this model in real world settings, including using ungrading practices, pedagogical documentation, and collaborative dialogue in setting learning outcomes, expectations and goals.

Keywords: assessment, evaluation, critical consciousness, empathy, metacognition

Introduction

Historical Context of Assessment and Evaluation

Traditional approaches to pedagogy, assessment and evaluation have been embedded in a teacher-centred model, wherein grades, academic performance, and student learning are measured, evaluated and decided by a centralized instructor or educational leader. This transactional model of learning, where knowledge is seen as a discrete bundle of information, transmitted by teacher to learner, measured and evaluated by systems and institutions to mete out credentials and accreditation, no longer fits in an online, post-pandemic world. Historically, assessment has been characterized by standardized testing, implemented in mass numbers arguably for reasons of efficiency and financial resources (Madeus & O'Dwyer, 1999). However, there are several key issues with this emphasis on reliability, replicability and arms-length objectivity. Wiggins (1989) iterated that these types of evaluations do not support personalized learning, as they were designed for delivery to large numbers of learners, thus negating possibilities for individualization and personalization

of the learning process. In our current times, this model is not supportable, not effective, and no longer applies. The nature of learning, and of school, has dramatically shifted. Kaufman states that "school is not simply about tests and 'checking boxes' of topics and assignments. Rather, schools today should have a mission of developing students as individuals and igniting their creativity" (2013, p. 79).

Not only is this a shift in perception about the nature of learning, it is also a very practical shift due to the digital availability of information. Learners no longer see 'teacher as expert' and more frequently rely on rapid access to current and changing information online. Learning becomes more process oriented, less rooted in specific content knowledge or subject expertise, and more centred on reflective practices, transformational learning, and emphases on learning how to learn, possessing critical consciousness, empathy and metacognition. Voogt et al. reveal that "collaboration, communication, digital literacy, citizenship, problem-solving, critical thinking, creativity and productivity are essential for living in and contributing to our present societies" (2013, p. 404). This aligns well with what numerous global sources indicate as the needs of future learners and employees in fast-changing digital workspaces (World Economic Forum, 2016; World Economic Forum, 2023; Bates 2019a; Bates, 2019b; OECD, 2017).

In addition, learning has quickly migrated to online platforms, the variety of which has a staggering breadth and depth (synchronous, asynchronous, distance, hybrid, massive open online courses and more). Prior to the emergency remote teaching caused by pandemic conditions, online learning was often viewed as an optional, but not critical, option as a learning environment. "Online learning is not a novel discovery, hints on online universities degrees surface as far back the 1980's, coupled with 1990's and 2000's as optimal maturation time for online education, and another undeniable fact is that online education has regularly been viewed from the perspective of good-to-have alternative but not a serious-mission model to guarantee steadiness of instructional activities" (Ribeiro, 2020, p. 1).

These rapid shifts to online learning settings due to pandemic conditions created an opportunity for universities and colleges to change how learning was designed, implemented, assessed and evaluated. Unfortunately, the pace of this shift did not allow for educators or learners to reap the benefits of well planned, thoughtfully designed online learning settings. Concurrently, methods of assessment and evaluation did not follow suit, and traditional means of assessing and evaluating learning outcomes (e.g., tests, exams,

graded assignments) no longer fit the learning context. Babatunde and Soykan concur that

> online education is deeply rooted in adequate planning and designs of instructions with several available theories and models, but the migration process of the universities to online education becomes questionable because these processes witnessed the absence of proper planning, design and development of online instructional programs due to the pandemic. The crisis-response migration methods adopted by universities are limited to delivery media without taking cognizance of effective online education theories and models. Thus, the crisis-response migration due to the pandemic should not be equated with effective online education or digital transformation of universities but rather be seen from the perspective of emergency remote teaching platforms". (2020, p. 8)

In addition to this, the role of the teacher has taken dramatic shifts as educational spheres expanded to online environments, concurrently redesigning the role of teachers in assessment and evaluation contexts. As instructors' roles change, in both online and face-to-face contexts, greater responsibility for learning moves to the learner, to become a critical consumer of knowledge, to seek out and select information that is needed to solve personalized learning challenges. This, in itself, demands a transformational approach to pedagogy, one that requires the learner to develop skills in critical reflection, critical consciousness, empathy and metacognition, and a model of assessment and evaluation that respects, and reflects these tenets.

In some instances, a problem-based learning (PBL) pedagogical approach can be productive in creating conditions within which these skills can develop. PBL may be one approach that will impact how we assess and evaluate student learning, as a pedagogical design strategy, it may be one method that facilitates the development of 21C learning skills. Savin-Badin (2007) states that the principles of PBL include (a) complex, real world situations that have no one 'right' answer are the organizing focus for learning, (b) students work in teams to confront the problem, to identify learning gaps, and to develop viable solutions (c) students gain new information though self-directed learning, (d) staff act as facilitators and (e)problems lead to the development of clinical problem-solving capabilities.

Savin-Baden (2007) later iterates that instructors' roles change dramatically from historical teacher-centred perspectives, so that

> facilitators and students influence one another in a whole variety of ways, such as their views about what counts as knowledge, the interplay of content and process and the ways in which they do and do not deal with conflict in the team. Facilitators and PBL online teams tend to shape and challenge each other, so that while most teams will meet the learning objectives of the program or module as a minimum, they will do so in different ways. (p. 50)

Problem-based learning requires learners to critically reflect, on the nature and selection of the problem to be solved, the resources required, and the variety of expertise and skills offered by diverse members of the learning community. In learning contexts, where individuals are assessed and evaluated, learners' direct involvement in the assessment and evaluation processes is key, from the design of assignments, through to the collaborative creation of criteria for evaluation. This models what numerous workplaces are requiring of employees, the analytical and creative thinking needed to work in teams, develop collective goals, and understand collaboratively designed criteria for success (World Economic Forum, 2016; World Economic Forum, 2023; Bates 2019a; Bates, 2019b; OECD, 2017). As such, learning environments that effectively teach 21C skills can benefit from PBL situations, but in order to integrate and assimilate concepts, critical reflection, both individually and collectively is needed.

The Role of Critical Reflection in Assessment and Evaluation

The need for critical reflection in learning, for adults and children, is becoming more and more paramount. This is a critical element of transformational, self-directed learning, and must be considered as a key component of how educators assess and evaluate student learning. In early days, reflection was viewed as a solitary process, an introspective journey that individual learners undertook to make meaning of their own growth. In 21C learning situations, the role of critical reflection has expanded to include community reflection, collaborative dialogue between learners and between instructors and learners. Elements of self-assessment and peer assessment have an integral place in new models of assessment and evaluation, and these strategies can have benefits and challenges (Panadero er al, 2016; Zhou et al. 2021), including the social and affective components involved in learning communities. These, however, may be skills that can be taught, within a context that emphasizes critical

consciousness, empathy and metacognition. Learning how to learn, both individually and in community settings, more aptly models how employees learn and work together in real life. As such, learning to critically reflect is a key element of new methods of assessment and evaluation.

Contrary to traditional models, there is an important role for dialogue, disagreement and differences of opinion in collaborative reflection. Trininic questions "are we brushing aside a very real dynamic when we steer students away from disagreement? Are there not times when disagreement is agreeable?" (Trininic, 2018, p. 624). Further, the authors state that "the means of resistance may be found within communities that grow through productive dissent, where critical thinking is not a set of rules, but a valued practice" (Trininic, 2018, p. 624). Educators need to consider how this might appear in new models of assessment and evaluation. Thus, a new model of assessment and evaluation needs to encourage, and embrace dialogue, dissent and disagreement, viewing it not as a barrier to learning but one that provides fodder for real growth and innovation. Further, there is a role for productive failure, making mistakes, and learning to view these as redirections and opportunities for growth (Kapur, 2016).

Real World Applications of Critical Reflection in Assessment

Extensive collaboration and reflection are achieved in communities of practice, through social media, digital meeting spaces, in businesses and organizations throughout the world. To do this successfully, Ulrich (2000) states that reflective practice must be open for critical examination. "Engaging in critical reflection brings commonly-held beliefs into question. To be critically reflective is to act with integrity, openness, and commitment rather than compromise, defensiveness, or fear" (Larrivee, 2000, p. 295). Educators and employers would do well to acknowledge that in the real world, dissent can be fruitful and be a source of innovation and creativity, thus the critical reflection of a team can spawn new ways to assess and evaluate the achievement of team goals and learning outcomes.

> We offer that dissent can be productive and that documenting instances of this, especially 'in the wild,' may be a fruitful endeavor. Specifically, instances of failure to reach consensus may be the locus of unexpected and potentially rich learning—a place for the construction of original ideas, process/practices, or identities—a place for innovation. (Trininic, 2018, p. 62)

Clearly, the skills gap exists, requiring learners to become better at critical reflection, and be active participants in how they are assessed and evaluated (Olson, 2015). In the real world, LittleJohn, Beetham and McGill (2012) argue that the nature of the workplace has changed, and digital forms of information are redefining the meaning of what it means to work. Thus, how we assess and evaluate employees needs to change as well. They state that these changes are being exacerbated by these factors;

> First, workplaces are being transformed such that production and practice are increasingly knowledge driven. Second, work problems are becoming more complex and third, people are regularly and repeatedly transitioning into new roles and careers, necessitating life-long learning. (2012, p. 547)

The recent Future of Jobs Report (2023) by the World Economic Forum (WEF) suggests that the skills developed by collaborative reflection are critically needed by organizations and employees. Research from the World Economic Forum (WEF) (2023) indicates that the skills needed by workers have changed, and those needed by the labour market include problem solving, resilience, and lifelong learning.

> Analytical thinking and creative thinking remain the most important skills for workers in 2023. Analytical thinking is considered a core skill by more companies than any other skill and constitutes, on average, 9% of the core skills reported by companies. Creative thinking, another cognitive skill, ranks second, ahead of three self-efficacy skills – resilience, flexibility and agility; motivation and self-awareness; and curiosity and lifelong learning – in recognition of the importance of workers' ability to adapt to disrupted workplaces. (WEF, 2023, p. 6).

Clearly, traditional models of teacher-centred assessment and evaluation cannot, and do not, facilitate the development of analytical and creative thinking. In order to meet the needs of future learners, businesses and employers are demanding that these skills become embedded in learning environments. According to the Future of Jobs Report (2023),

> Six in 10 workers will require training before 2027, but only half of workers are seen to have access to adequate training opportunities today. The highest priority for skills training from 2023-2027 is analytical thinking, which is set to account for 10% of training initiatives, on average. The second

> priority for workforce development is to promote creative thinking, which will be the subject of 8% of upskilling initiatives (2023, p. 6).

Ultimately, models of assessment and evaluation need to be designed with the development of these skills in mind. Analytical thinking, creativity and innovation do not occur in teacher-centred pedagogy, thus, a new framework is essential to facilitate the emergence of these 21C competencies. Learning, in school and in workplaces, must be shaped in a way the personalizes learning, and thus creates conditions where a transformational approach to growth evolves through collaborative approaches to assessment and evaluation.

Transformational Learning

Transformational learning occurs through a learner's "experience, understanding one's frame of reference, the role of disorienting dilemma, and of dialogue in communicating with others" (Calleja, 2014, p. 3). This type of learning can occur effectively in dialogue, where learners are engaged in discussion with critical others, who challenge previously held ideas and concepts. "A more dependable frame of reference is one that is more inclusive, differentiating, permeable (open to other viewpoints), critically reflective of assumptions, emotionally capable of change, and integrative of experience" (Mezirow, 2000, p. 19). Approaches to assessment and evaluation that foster transformational learning must allow for dialogical opportunities between instructor and learners, and amongst learners themselves. "Engaging in critical reflection brings commonly-held beliefs into question. To be critically reflective is to act with integrity, openness, and commitment rather than compromise, defensiveness, or fear" (Larrivee, 2000, p. 295). Further to this, collaborative reflection can provide unique perspectives where shared learning can be challenged, to clarify thinking, and reconstruct ideas to better fit changing circumstances. Brookfield states that "talking to colleagues about problems we have in common and gaining their perspectives on these increases our chances of stumbling across an interpretation that fits what is happening in a particular situation" (Brookfield, 1998, p. 200). Ultimately, the world has dramatically evolved, in learning and workspaces, and pedagogical initiatives are required to shift alongside these changes.

Pedagogical Shifts to Foster Transformational Learning

The development of learning environments that foster transformational learning requires educators to create communities wherein assessment and evaluation become collective endeavours. Hod and Ben-Zvi (2018), discuss the creation of a "humanistic knowledge building community." The potential of this for self-directed personalized learning supported in community is vast, however, it requires the teacher to relinquish some centralized power, thus shifting the responsibility for measuring learning outcomes to a collective framework, rather than being teacher-centred. Flavin argues that "when digital technologies are brought into the classroom setting, the lecturer may have to relinquish some of their authority, thus impacting on the 'rules' and 'division of labour' nodes in order to enable enhanced learning" (2012, p. 104). In online contexts, the integration of technology to create a high-quality learning environment that supports transformational learning is critical.

> Pedagogical integration of technology into the course and assessment, lecturer modelling of the pedagogical use of the tools, creating a supportive learning community, and creating sustained interaction that explicitly scaffolds the development of ontological shifts that is the reconceptualization of what it means to teach and learn within social constructivist paradigms, both for the lecturers and the students. (Cochrane, 2012, p. 125)

Marchione's Framework of Assessment and Evaluation

As a result of critical examination of these factors, Marchione (2022) proposes a new framework of assessment and evaluation, one that is framed with the learner at the centre of the process, and multiple interdependent factors that contribute to assessing and evaluating learner progress. These facets include critical consciousness, empathy and metacognition. In this model, based on humanistic and social justice perspectives, the focus rests on the learning process, on collaboratively assessing factors that directly impact learning success, and intentionally integrating critical consciousness, empathy and metacognition into the learning experience.

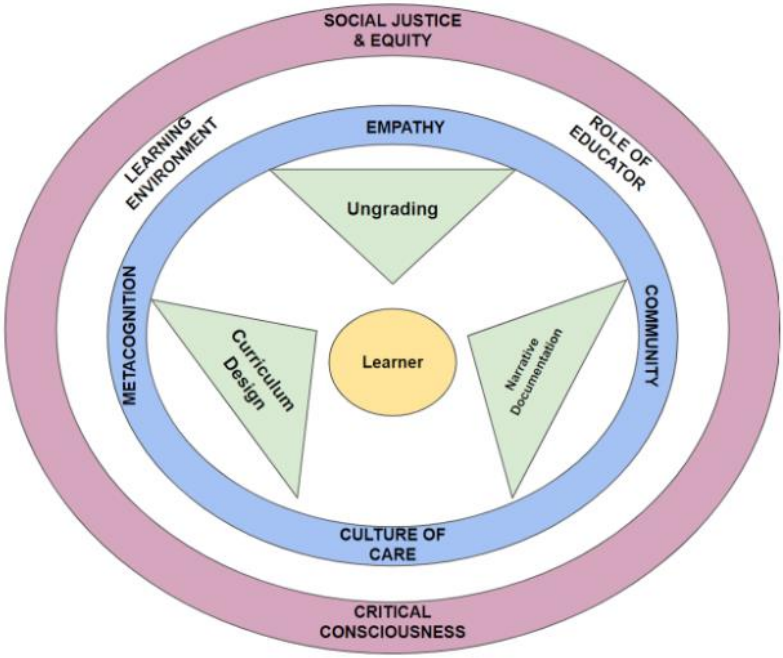

Figure 1. Marchione's (2022) Framework of Assessment and Evaluation.

Critical Consciousness

Critical consciousness encapsulates the framework as a central tenant to guide assessment and evaluation practices. Freire (2005) describes critical consciousness as a sociopolitical tool that considers one's historical and social position and the impact that position has on shaping their reality. Developing an awareness of one's positionality in relation to their community can play an integral role in assessment and evaluation practices. Educators who develop critical consciousness can reflect on their individual, social, and cultural position and how these societal structures uphold those positions and in term, inform their assessment and evaluation practices (Blake and Masschelein, 2003; Freire, 2005). Understanding one's perception of the world can provide a critical view of systemic inequities, and empower educators, students, and their communities to take action towards addressing these inequities within the learning environment (El-Amin et al., 2017; Freire, 2005). Students and their families may feel the direct impact of this critical awareness from their educators, reinforcing a sense of belonging and visibility.

To integrate critical consciousness into the learning environment, educators may need support, time, and resources in order to reflect on pedagogical practices and deepen an understanding of social justice and equity issues within their communities (Aronson and Laughter, 2020; Boske et al., 2017). This reflective shift in practice can aid educators in addressing systemic barriers and provide impactful results on policies and structures that may need to be addressed in an effort to dismantle systems of oppression, from grading practices to graduation standards (Aronson and Laughter, 2020; Boske et al., 2017).

Empathy

Empathy is at the core of human relationships, fostered through understanding, active listening, and dialogue (Brett et al., 2003; Blasco and Moreto, 2012). Recognizing that emotions are complex, empathy asks that one considers the point of view of another while acknowledging that one's feelings and thoughts are individual (Brett et a., 2003; Blasco and Moreto, 2012). In order for this new framework to be effective, a collaborative, non-competitive approach to learning is essential. Learners need to feel that their voices are heard, that they provide an important perspective on the assessment of their learning objectives, and that they can be open to critique and growth. The development of empathy, for educators and for learners, is a critical element in personalizing learning, and in effectively measuring learning outcomes. To more freely and fully participate in discourse, participants must have...openness to alternative points of view: empathy and concern about how others think and feel…" (Mezirow, 2000, p. 13).

The way curriculum is explored and implemented, building meaningful connections with students and their families, and developing a deeper understanding of challenges in the learning communities are ways educators can develop empathic responses (Aronson and Laughter, 2020; Berkovich, 2020). Furthermore, it is important to also recognize how educators may need to receive empathy, supporting their personal and professional growth in order to provide support to their students (Berkovich, 2020). This reciprocal relationship within learning environments reinforces the importance of empathy, and the fact that we are collaborative in building strong communities.

Metacognition

Metacognition and critical reflective practices play an essential role in deep learning and foster a strong sense of the *journey* that is learning (Blum, 2020; Brookfield, 1998). Brookfield (1998) discussed the lenses of critical reflection, including understanding our autobiographies as learners and understanding how personal experiences shape our understanding of how we learn and impact how educators may view and understand learning themselves. The structures in society combined with one's personal experience and values can impact how one can reflect on their learning and lived experiences (hooks, 1994; Brookfield, 1998; Immordino-Yang et al., 2018). In order to effectively reflect on how one learns, they need to feel safe in their learning environment regardless of race, gender, orientation, or class (Immordino-Yang et al., 2019; Immordino-Yang et al., 2018). This sense of safety can strengthen the relationship between educators and their students when discussing learning opportunities and reflecting on assessment goals. These strategies can support a collaborative approach to evaluating learning in a way that reflects the multifaceted nature of each learner.

Conclusion

As the journey towards more effective strategies for assessment and evaluation continues, it is essential to note that educators continue to hold standards of academic rigour and integrity. Neuwirth et al. define rigour as, "...the quality of being extremely thorough, exhaustive, or accurate" (2020, p. 13). While numerous institutions grapple with how online learning can be assessed while maintaining a sense of academic rigour, some tools such as Kritik and other digital modalities can provide a means of recording, and using self and peer assessment in effective ways. As chatbots, algorithms and artificial intelligence begin to invade education, challenging educators to redefine what assessment, evaluation and plagiarism are, the broader questions require us to interrogate what values are consistently needed by a post-pandemic world. The traditionally seeded requirement of academic rigour must be balanced with essential human qualities so desperately needed, and documented by numerous organizations (World Economic Forum, 2016; World Economic Forum, 2023; Bates 2019a; Bates, 2019b; OECD, 2017).

Clearly, the authors argue that while these are essential components, the rapidly changing global dynamics created by the pandemic require us to expand our view of learning, assessment and evaluation. Skills needed by future learners include rigour and integrity, but they also equally require a sense of humanity, compassion and responsibility for oneself and others. This collective, shared view of learning is best measured by an assessment and evaluation model that includes, and celebrates, our diversity, stands firmly on a foundation of social justice, and creates a learning environment where everyone has a place. We envision an educational world where assessment and evaluation become a collaborative, inclusive process; where historical, ionic academic pillars are intentionally deconstructed to open doors, offer opportunities, and create greater opportunities for personalized and collective learning. Educators must integrate not only the lived learning experiences of their students and employees, but also themselves. This critical reflection can generate a need to build transformational learning communities wherein each learner can thrive, improve the overall human condition, and contribute meaningfully to the global good.

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Chapter 6

Unveiling Success Factors and Digital Platform Suitability in Distance Architectural Education: Enhancing Sustainability in the Post-COVID Era

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Abstract

The COVID-19 pandemic prompted a rapid shift to online education (OES) across all educational levels, initially lacking the required technical infrastructure. OES has now become a permanent part of education. Identifying key factors for successful online architectural education (OAE) is crucial for sustainability. This study aimed to identify OAE success factors and select a suitable digital platform to maintain education quality. The study employed a mixed approach using qualitative and quantitative methods. A systematic literature review (SLR) was conducted to retrieve 69 success criteria (SCs). A questionnaire was administered to 232 architecture students in Turkey, and data were analyzed quantitatively. This research comprehensively quantified pandemic-related SCs affecting OAE, ranked them based on Importance Rating Index (IRI), and categorized them by scope and impact, revealing their sub-dimensions. The study also calculated effect sizes and determined significance levels of these factors. It investigated the relationship between these factors and the digital platforms influencing OAE success.

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Introduction

Architectural education (AE) traditionally emphasized hands-on experiential learning, distinct from other disciplines. The COVID-19 pandemic forced a shift to online education (OES), challenging the essence of AE. OES led to passive learning, hindering student progress in architectural education. OAE's effectiveness and sustainability were questioned due to these challenges.

Despite the COVID-19 pandemic officially ending in May 2023 (UN, 2023), OES has become permanent in higher education. Understanding OAE and selecting suitable methods and platforms for its unique characteristics are essential. Identifying OAE success factors is crucial for the sustainability of architectural education.

Previous research in this field has primarily focused on architecture students' satisfaction with OAE, addressing challenges related to COVID-19, suggesting guidelines, exploring virtual reality in education, and identifying barriers to the adoption of OAE (Peimani and Kamalipour, 2021b; Koh and Wong, 2021; Ceylan et al., 2021; Asadpour, 2021; Bakir and Alsaadani, 2022; Al Maani et al., 2021; Komarzynska-Swieciak et al., 2021; Alkhalil et al., 2021; Alnusairat et al., 2021; Elrawy and Abouelmagd, 2021; Leon et al., 2021; Guler, 2022; Dennis, 2021; Wu et al., 2021; Xi and Cong, 2022; Tandon et al., 2021). However, lacked critical success factors, hindering sustainable strategies for AE. Evaluating the suitability of digital platforms for OAE in architecture schools is essential. This study aims to: (1) identify success criteria, (2) rank significant criteria, (3) compare digital platforms, and (4) offer recommendations to enhance OAE and AE's sustainability.

This study is unique as it compares OAE success in theoretical and practical courses, prioritizes success criteria, compares digital platforms, and assesses factors' impact on platforms, addressing a research gap.

The Importance of the Study and the Gap in the Literature

Due to the COVID-19 pandemic, architecture schools swiftly shifted to OES using university resources, leading to varying approaches across institutions.

The rapid transition to OES, while beneficial in some aspects, posed challenges that must be addressed to ensure equitable education, particularly in developing countries like Turkey.

The global shift to OES across education levels during the pandemic has sparked extensive research on its impact on educational processes. This shift has also drawn the attention of researchers worldwide, leading to investigations from various angles in the field of AE.

Most existing studies in the literature have primarily explored the COVID-19 pandemic's influence on AE (Nubani and Lee, 2022; Metinal and Gumusburun Ayalp, 2022; Mayer, 2021; Scatena et al., 2021; Al Maani et al., 2021; Ceylan et al., 2021; Asadpour, 2021; Alnusairat, et al., 2021). These investigations reveal that technological, psychological, pedagogical, economic, and interactional factors significantly impact OAE success (Nubani and Lee, 2022; Khan and Thilagam, 2022; Bakir and Alsaadani, 2022; Travis, 2022; Al Maani et al., 2021; Alnusairat, et al., 2021; Asadpour, 2021; Scatena et al., 2021). The choice of digital platform for OAE plays a pivotal role, with teaching capabilities being contingent on the platform's features (Yu et al., 2021; Ferng, 2020; Varma and Jafri, 2020). Thus, selecting the right digital platform is crucial for optimizing the effectiveness of OAE.

Scholars have examined various aspects of OAE, including student satisfaction (Alkhalil et al., 2021; Alnusairat et al., 2021), pandemic effects on architectural education (Varma and Jafri, 2021), architectural design communication in AE (Akçay Kavakoglu et al., 2022), course quality (Tang et al., 2021), changes in AE due to the pandemic (Elrawy and Abouelmagd, 2021), and student perceptions and experiences (Al Maani et al., 2021; Komarzyńska-Świeściak et al., 2021; Peimani and Kamalipour, 2021b).

Additionally, some researchers have explored architecture students' evaluations of online design studios (Andiyan et al., 2021; Ceylan et al., 2021) and proposed pedagogical structures for online architectural studios (Khan and Thilagam, 2021). Furthermore, studies have identified critical drivers, challenges, and facilitators for OAE (Khan and Thilagam, 2022; Tandon et al., 2021).

Efforts to address OAE challenges include the development of video-based virtual reality approaches for online design courses (Wu et al., 2021), new teaching methods and curriculum enhancements (Milovanovic et al., 2020), digital adaptation of building information modeling (BIM) and communication technologies (Leon et al., 2021), and mapping students' strategies for digital well-being in AE during the pandemic (Dennis, 2021).

While existing studies on OAE offer valuable insights, they often focus on either quantitative or qualitative analyses, using specific methodologies. Quantitative analyses include exploratory factor analysis (Asadpour, 2021), descriptive statistics, and correlation analysis (Alnusairat et al., 2021; Koh and Wong, 2021; Varma and Jafri, 2021; Peimani and Kamalipour, 2022; Güler, 2022), structural equation modeling (Tandon et al., 2021; Akçay Kavakoglu et al., 2022), and analytic hierarchy process (Tang et al., 2021). Qualitative analyses encompass semi-structured interviews (Megahed and Hassan, 2022; Yu et al., 2021), experimental studies (Wu et al., 2021), and focus group interviews (Ibrahim et al., 2021).

While these studies offer multifaceted insights into OAE, they often do not address the critical questions of OAE's success factors, their relative importance, and the suitability of digital platforms. This study fills these gaps by identifying success criteria through systematic literature review, ranking their importance using an index of relative importance (IRI), examining their relationship with digital platforms through variance analysis, and assessing their impact on OAE success using eta-square analysis. This comprehensive approach aims to inform strategic planning for sustainable AE.

This study, like previous ones, utilized an online survey. However, it diverged from prior research by structuring survey questions based on a SLR, ensuring greater objectivity. Additionally, it innovatively categorized the impact of OES on AE by scope and identified critical success factors for OAE. Unlike other survey-based studies, this research ranked the identified criteria by their relative importance, marking a unique approach. Hypothesis testing was employed to establish confidence intervals and assess the relationship between factors and hypotheses. Furthermore, eta-squared analysis quantified the effect size of these factors on OAE success. Remarkably, this comprehensive methodology distinguishes this study from prior research in the field.

Materials and Methods

The current study employed a mixed approach in which qualitative and quantitative methods were used together. The qualitative aspect is based on a systematic literature review (SLR) while the quantitative part of the study is carried out using statistical analysis. The adopted mixed method consists of four successive phases (Figure 1).

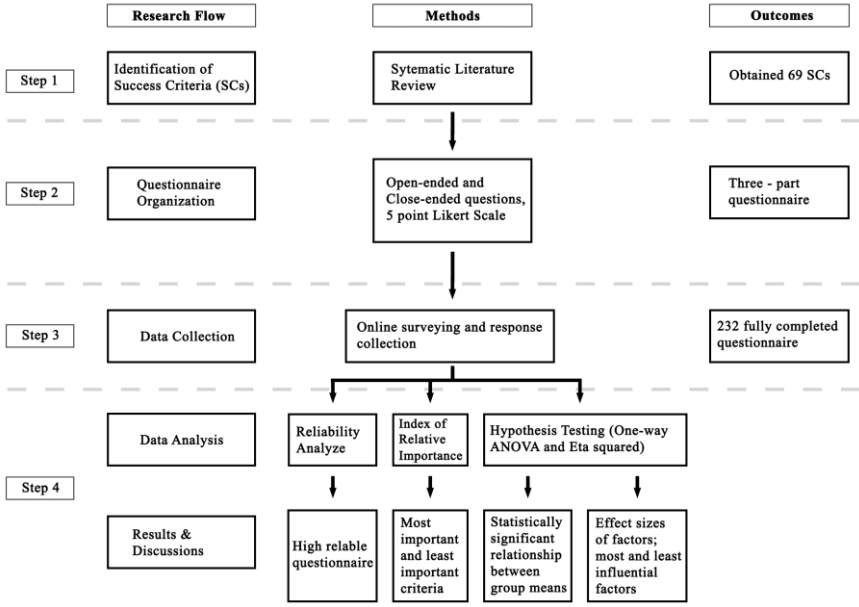

Figure 1. Flow diagram of the research protocol within the scope of SLR.

Determination of Success Criteria (SCs)

The first stage of this study involved the determination of the criteria that affect the success of OAE. The possible criteria were obtained through an SLR, which is considered by many researchers to be an objective method (Ayat et al., 2020, 2021; Gupta et al., 2019).

Several review methods have been developed to analyze the literature. Among these methods, "systematic review" is a research technique developed to critically evaluate the relevant literature and collect data in this context (Liberati et al., 2009). To collect data from the literature in a systematic, transparent, unbiased, and reproducible manner, this study used the SLR method recommended by Macpherson and Jones (2010), Tranfield et al. (2003), and Denyer et al. (2008). SLR is a powerful technique for evaluating published work in the scientific field.

In the current study, a three-step approach was constructed to determine the possible criteria, which included the stages of "identification", "review", and "inclusion".

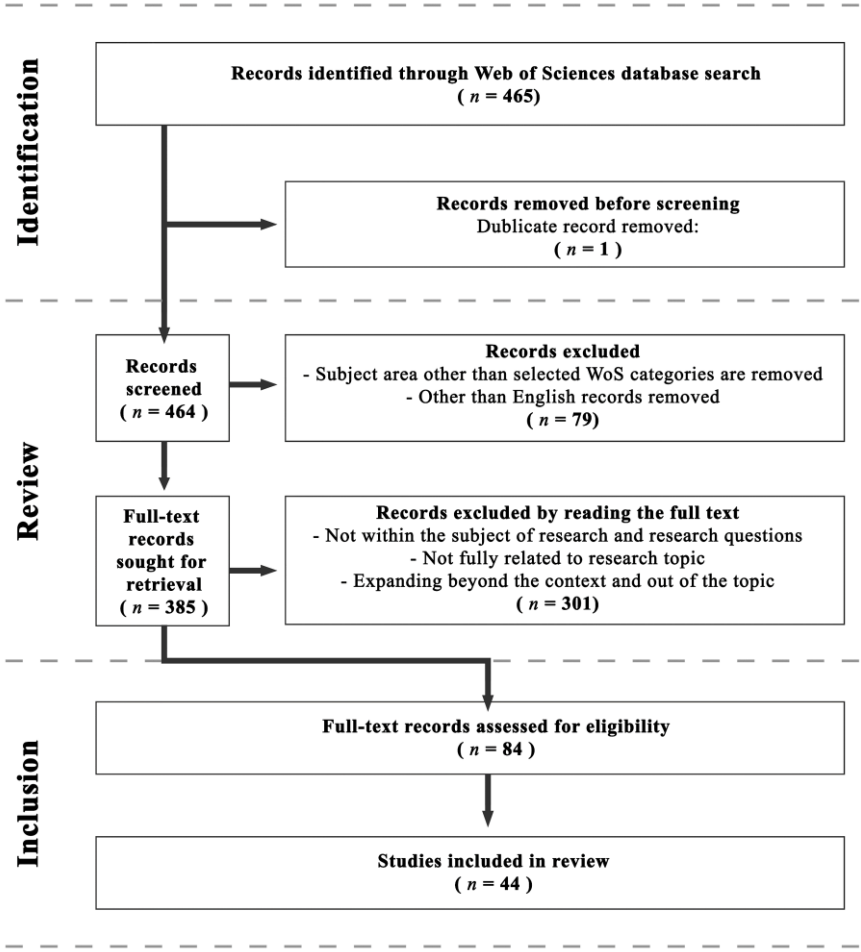

Figure 2. Research Methodology Framework.

The research question was defined in the identification phase and, then a review protocol was developed. Primary studies were determined in the review stage. The identified studies were then selected, extracted, analyzed and synthesized. Finally, the results obtained from the literature were presented as a report in the evaluation and inclusion phase, which is presented in Figure 2.

The Web of Science (WoS) search engine was employed to identify academic papers, known for its comprehensive coverage and built-in analytics (Yu et al., 2020). The search was limited to English-language articles and

review papers in academic journals, excluding conference papers due to concerns about peer-review quality.

The search query used in WoS was: (ALL FIELDS) "architectural education" AND ("online learning" OR "distance education" OR "distance learning" OR "online learning") AND "COVID-19," resulting in 465 publications. After removing duplicates and manual screening for relevance, 44 articles remained. Further filtering based on specific parameters, such as field (AE), publication language (English), and publication type, eliminated 79 records. Well-defined inclusion and exclusion criteria were then applied, with all studies reviewed in full text. Ultimately, 44 articles were selected.

These 44 studies formed the basis for developing a survey questionnaire. Through detailed analysis, 69 success criteria (SCs) influencing OES success in AE were identified. These SCs were categorized into seven main groups, encompassing "*technical and technological infrastructure*," "*health and psychology*," "*pedagogy*," "*interaction, satisfaction, and communication*," "*educational adaptation*," "*economic factors*," and "*other factors*," based on their impact characteristics, focus, scope, and nature.

In defining the factors and classifying the SCs, the impact areas of the identified items were taken into consideration. The 69 SCs that were directly related to these seven factors were identified and are listed in Table 1.

Organizing the Questionnaire

A questionnaire based on the SLR findings was administered to architecture students in Turkish universities. The questionnaire consisted of two parts:

The first part included the assessment of 69 SCs detailed in Table 1, categorized as follows: 11 for technical and technological infrastructure, 12 for health and psychology, 9 for pedagogy, 10 for interaction, communication, and satisfaction, 22 for educational adaptation, 3 for economic factors, and 2 for other factors. Participants rated the importance of these SCs using a five-point Likert-type scale, ranging from 1 ("None") to 5 ("Very Highly"), based on their OAE experiences and expectations.

The second part collected personal and sociodemographic information, including age, gender, education level, and university type, from the participants.

Table 1. Criteria that effecting the success of OAE

Factors	Code of SC	Success Criteria (SCs)	Source
Technical and Technological Infrastructure	T1	Lack of an adequate technical background to solve networking and software-related issues	[1-4]
	T2	Technical issues	[5-8]
	T3	Lack of fast and stable internet connection	[2], [6-8], [9-17]
	T4	Opportunity to access recorded lectures and juries at any time	[1], [7-9], [18-21]
	T5	Low-screen resolution quality - The screen resolution makes it difficult to see the design work in detail	[14], [22, 23]
	T6	Flexibility to run the applications on a variety of devices (e.g., mobile devices, tablets, and laptops)	[9], [17], [24]
	T7	The emergence of cyber security risks	[3], [7], [25, 26]
	T8	Insufficient screen resolution to accurately display and critique scaled drawings	[6], [22, 23]
	T9	Lack of the possibility of drawing or sketching on the screen; difficulties with using the mouse for sketching	[6], [8], [23], [27]
	T10	Issues with the availability of up-to-date and appropriate hardware and software platforms	[2-4], [10], [15, 16], [23], [26-29]
	T11	The need for user-friendly interfaces and applications to make e-learning easy	[3], [9], [29]
Health and Psychology	HP1	Lack of guidance and support	[8, 9], [19], [26], [30, 31]
	HP2	Lack of privacy (felt by both teachers and students)	[3], [8], [12], [30], [32]
	HP3	Time and workload management (i.e., an increase in the number of tasks	[8, 9], [11, 12], [28]
	HP4	Increased sense of isolation, and disconnection from peers and colleagues	[2], [4, 5], [8], [21], [23]
	HP5	Psychological problems/negative feelings that could lead to alienation, uncertainty, confusion, and identity loss	[4, 5], [9], [12], [16], [18], [19], [33]
	HP6	The dissolved boundaries between the work environment and home environment (i.e., struggle with establishing boundaries between work and family)	[5], [12], [17], [25]

Factors	Code of SC	Success Criteria (SCs)	Source
	HP7	When feedback is delayed, students feel stress, frustration, and confusion	[8, 9], [22], [31]
	HP8	The lack of emotional connection	[4], [8, 9], [27], [34]
	HP9	Insufficiency of self-discipline and concentration issues	[7], [11], [28, 29]
	HP10	Extended working hours for instructors	[5], [9], [17]
	HP11	Instructors are struggling to keep students concentrated throughout the lesson	[12], [17], [26] [28], [35]
	HP12	Instructors are struggling to motivate students to ask question	[4], [17], [26], [35]
Pedagogy	P1	Online learning enables students to customize their experience based on their learning style	[1], [4], [31], [36]
	P2	Enabling students to discover their potential and develop their abilities	[8], [9], [31], [44]
	P3	Due to the inability to create a campus culture and university spirit online, students are deprived of this opportunity	[4], [26], [33]
	P4	It helps students to realize their ability to be productive under suddenly changing conditions	[9], [18], [31], [44]
	P5	Without facial expressions and body language, designs and presentations become rather dull for participants	[8], [14], [24], [26]
	P6	Expectations from students to be more responsible for their own education	[1], [8-10], [18], [19], [20], [29], [30, 31], [33], [37]
	P7	Opportunity to improve computer skills	[4] [8, 9], [19]
	P8	Lack of skills to utilize devices or facilities (the need for more time and practice to use new software and applications)	[4], [9], [17], [27]
	P9	Instructors' inability to integrate technology or insufficient software skills (which influences the efficiency of the course)	[1], [5], [9, 10], [27, 28], [30], [33]
Interaction, Communication and Satisfaction	ISC1	Students are struggling to understand online lectures, design juries, and critiques	[4], [8], [24], [29-31]
	ISC2	Lack of peer learning	[1], [4, 5], [16], [19], [24], [26, 27], [33, 34], [38]
	ISC3	Students are uncomfortable because they cannot view their classmates' progress and projects	[4], [8], [16], [21], [24]

Table 1. (Continued)

Factors	Code of SC	Success Criteria (SCs)	Source
	ISC4	Lack of interaction, communication, and cooperation among students	[2], [4], [6], [8], [16], [24], [26, 27], [32], [39]
	ISC5	Low interaction and communication issues among students and between students and instructors	[2], [4], [6], [8, 9], [12], [16], [19], [24], [26, 27], [32], [34], [38, 39]
	ISC6	The potential of collaborating with institutions and professionals all around the world	[3], [5], [22], [27], [31], [39, 40], [44]
	ISC7	Removal of geographic barriers	[1], [7], [10], [12-15], [22-25], [27, 28], [31], [34], [36], [39], [40, 41]
	ISC8	The difficulties in understanding teachers' instructions online	[2], [4], [8, 9], [19], [24], [29], [30, 31]
	ISC9	It increases cooperation and interaction between universities and students on a national and international level	[12], [27], [31], [39], [41], [44]
	ISC10	Students' previous familiarity with the tutors has positive effects on lessons, projects, and assignments	[12], [30], [44]
Educational Adaptation	EA1	It provides convenience for students to deliver course outputs (homework, etc.) to instructors	[21], [27], [42]
	EA2	Working with 3D models and animations without hand sketches or physical models makes expressing design ideas difficult	[8], [19], [23], [26, 27]
	EA3	Inadequacy of critique frequency and quantity	[9], [19], [21], [30], [31], [44]
	EA4	Student assessment issues	[5], [10], [17], [26], [29]
	EA5	Lack of immediate access to teachers' help	[1], [8], [22]
	EA6	Concerns about cheating	[1], [17], [43]
	EA7	Providing flexibility	[1], [4, 5], [10], [17], [21], [25], [31], [36], [40], [44]

Factors	Code of SC	Success Criteria (SCs)	Source
	EA8	Increased time spent on lectures and design critiques	[5], [8, 9], [17]
	EA9	Students are dissatisfied with the new assessment criteria adapted to online education	[17], [19], [26]
	EA10	It allows students considerable flexibility in arranging and attending tutorials	[13], [17], [27, 28], [33], [44]
	EA11	Adequate and reliable assessment tools are needed due to unsupervised exams, projects, and assignments	[12], [17], [26]
	EA12	It allows students to take as many courses as they like within the curriculum	[25], [29], [31]
	EA13	It causes stereotypical designs that are far from aesthetic	[8], [26], [29]
	EA14	There will be a biased evaluation as the students' names are visible to the evaluators on screen while evaluating	[10], [17], [29]
	EA15	The focus is on learning the technology rather than on the information taught	[16], [29], [37]
	EA16	Ability to allow an unlimited number of participants to participate in courses	[15], [21], [31]
	EA17	Unfamiliarity with quiz/exam formats	[17], [26], [35]
	EA18	Instructors are not able to know whether the lesson topics and contents are understood by the students	[4], [17], [35]
	EA19	Instructors cannot agree among themselves on student work or reconciling grades	[5], [10], [26], [35]
	EA20	Instructors are having difficulty preparing, publishing, and administering online exams	[5], [17], [35]
	EA21	Having students' cameras turned on during online lecture sessions will greatly benefit their learning experience	[4], [7, 8]
	EA22	Working with drawings and 3D models in a digital environment without an adequate hand sketch prevents the designs from reaching the expected maturity level	[8, 9], [26, 27]

Table 1. (Continued)

Factors	Code of SC	Success Criteria (SCs)	Source
Economic Factors	EF1	Lack of access to resources	[3], [6], [8-10], [19], [24], [26]
	EF2	A decrease in both the expenses for printing and its impact on the environment	[9], [15], [19], [24, 25], [29]
	EF3	The absolute need for accessibility to hardware such as tablets and computers	[3, 4], [9], [12], [26-28], [30], [36]
Other Factors	OF1	The lack of privacy and a proper work environment (home, dormitory, etc.)	[8], [12], [16, 17], [24], [30]
	OF2	Interruptions of online lessons due to family members or environmental factors	[2], [16], [32]

Note: [1] Newman et al., (2018); [2] Muilenburg and Berge, (2005); [3] Koenig, (2019); [4] Nubani and Lee, (2022); [5] Megahed and Hassan, (2022); [6] Brzezicki, (2020); [7] Peimani and Kamalipour, (2021a); [8] Bakir and Alsaadani, (2022); [9] Alnusairat, et al., (2021); [10] Khan and Thilagam, (2022); [11] Bhandari et al., (2020); [12] Ibrahim et al., (2021); [13] Headley et al., (2015); [14] Miller, (2001); [15] Milovanović et al., (2020); [16] Peimani and Kamalipour, (2021b); [17] Jimenez-Vicario, (2022); [18] Ceylan et al., (2021); [19] Al Maani et al., (2021); [20] Iranmanesh and Onur (2021); [21] George, B.H. (2018); [22] da Silveira, (2008); [23] Sahuc, (2021); [24] Scatena et al., (2021); [25] Schwarz et al., (2020); [26] Mayer, (2021); [27] Akçay Kavakoglu, (2022); [28] Varma and Jafri, (2021); [29] Tandon et al., (2021); [30] Asadpour, (2021); [31] Travis, (2022); [32] Becker et al., (2013); [33] Saghafi et al., (2012); [34] Senyapili and Karakaya, (2009); [35] Alatni et al., (2021); [36] Khan and Thilagam, (2021); [37] Soccio et al., (2021); [38] Pektaş-Taşlı, (2012); [39] Masdéu and Fuses, (2017); [40] Yu et al., (2021); [41] Kukina et al., (2016); [42] Vasquez de Velasco, (2007); [43] Deshmukh, (2021); [44] Shannon, (2013).

Data Collection

This study targeted architecture students in Turkey who had experienced both theoretical and design courses through OES during the COVID-19 pandemic. The sample included students who had online courses for more than one semester. Data collection took place through online questionnaires to mitigate the risk of virus transmission.

In Turkey, there are 208 universities and 118 architecture departments. Researchers obtained permission from 118 universities to administer the questionnaire to their architecture students. Data were collected from 20 different architecture departments between April 30th and June 28th, 2022, among those granting permission. The questionnaire was emailed to 2,258 architecture students who had completed all their courses for at least one semester via OES. A total of 232 fully completed questionnaires were received, representing a response rate of 10.27%. Crawford et al. (2001) noted that response rates for web surveys tend to be lower than traditional mail surveys. However, Iacobucci (2009) suggested that sample sizes ranging from 50 to 100 can be sufficient, and the conventional rule of requiring at least 200 samples is considered "conservative" and "simplistic." Within this context, the 232 fully completed responses in this study are deemed adequate.

Data Analysis

Participants' responses were analyzed using Statistical Package for Social Sciences (SPSS) 26.0 software, which included various statistical tests: normality test, reliability analysis, the index of relative importance, one-way ANOVA, and eta squared.

Reliability analysis assessed the internal consistency of the questionnaire, following Nunnally and Bernstein's (2007) guidelines. Cronbach's alpha coefficient, ranging from 0 to 1, was employed to measure internal consistency, with 0.7 being the accepted threshold for questionnaire reliability.

Subsequently, data normality was checked to determine the suitability for parametric or nonparametric statistical analysis. Skewness and kurtosis values were calculated to assess data distribution, with values within the -3 to +3 range considered indicative of normal distribution. The Index of Relative Importance (IRI) ranked the significance of SCs, an appropriate method for Likert-type scale ratings. IRI is widely used to prioritize survey responses by

importance. In this study, IRI was utilized to determine and rank the importance levels of SCs.

The scoring measured and categorized the relative importance level of each SCs that affected the success of OAE. The IRI is calculated as follows (Zhao and Chen, 2018):

$$IRI_k\,(\%) = \frac{5(n_5) + 4(n_4) + 3(n_3) + 2(n_2) + n_1}{5(n_5 + n_4 + n_3 + n_2 + n_1)} \times 100 \quad (1)$$

where IRIk (%) represents the possible COVID-19 effects and is evaluated individually for the relevant data (k) of the respondents. In the equation, "k" indicates the level of effect.

Considering all participants, the overall IRI for each impact was calculated for all sets of effect levels using the weighted average of the IRI_k as follows (El-Gohary and Aziz, 2014):

$$\text{Genel (Overall) } IRI_k\,(\%) = \frac{\sum_{k=1}^{k=5} (k \text{ x} IRI_k)}{\sum_{k=1}^{k=5} k} \times 100 \quad (2)$$

where Overall IRI (%) represents the total weighted average percentage of the IRI for each impact. Also, Overall IRI (%) was conducted by relying on all sets of participant levels of influence. IRI_k is calculated separately from Eq. (1), and the factor index was determined using the average IRI of the items for each SCs. This method provided a comparison of the relative importance of the SCs and how they were perceived by the participants (Rooshdi et al., 2018).

Hypothesis testing investigated the potential statistically significant relationship between SCs and the digital platform used for OAE. Various variables influence OAE success, including demographic factors, psycho-social profiles, accessibility of requirements, and digital platform features. While demographic characteristics of students are beyond intervention, determining the right digital platform for OAE is feasible. This study aimed to identify the suitable platform for AE based on its structure and characteristics, employing hypothesis testing.

Since the data exhibited a normal distribution, the parametric "one-Way ANOVA" was used to analyze group means. It assessed whether statistically significant differences existed between specified variables among groups. To pinpoint significant differences between group means, the Tukey Honestly

Significant Difference (HSD), a post-hoc multiple comparison test, was applied.

Lastly, effect size analysis via Eta squared (η^2) quantified the proportion of variance in the dependent variable explained by the independent variable. Effect size measures research findings' significance and the strength of the effect observed. It ranges from 0.00 to 1.00, with interpretations: small effect (0.01-0.06), medium effect (0.06-0.14), and large effect (0.14 and above). Effect sizes calculated for individual factors in this study assessed their contribution to total variance.

Results

Respondent Profile

Regarding the sample group's demographic characteristics, there were 45 (19.4%) freshman architecture students, 54 (23.3%) second-year students, 50 (21.6%) third-year students, and 83 (35.8%) fourth-year students. Among the participants, 148 (63.8%) were enrolled in private universities, while 84 (36.2%) attended state universities.

Regarding the digital platforms used for OAE, 155 (66.8%) used Zoom, 53 (22.8%) utilized Microsoft Teams, 13 (5.6%) opted for Google Meet, and 1 (0.4%) each chose Blackboard and Join Me, with 9 (3.9%) participants using other platforms.

Lastly, concerning the duration of education received through OES, 46 (19.8%) students completed 1 semester, 76 (32.8%) completed 2 semesters, 72 (31.0%) completed 3 semesters, 23 (9.9%) finished 4 semesters, and 15 (6.5%) completed 5 semesters entirely through online education systems.

Reliability and Normality Analyze

The Cronbach's Alpha coefficients, which measure the reliability of the data set, were found to be above the minimum threshold of 0.7 for all factors and indicate excellent internal consistency of the responses (Table 2). Furthermore, before performing statistical tests, it is necessary to check whether the data have a normal distribution. Therefore, the skewness and kurtosis values of the data belonging to the variables were determined, and as

a result, it was found that all the data obtained from the questionnaires had a normal distribution (Table 2).

Ranking of SCs

Participants' responses to 69 SCs affecting the success of OAE, asked on a five-point Likert scale in the questionnaire form, were ranked in relative importance, and presented in Table 3.

It can be seen that the most important top 5 SCs are:

T6, "Flexibility to run the applications on a variety of devices (e.g., mobile devices, tablets, and laptops)",

T4, "Opportunity to access recorded lectures and juries at any time",

EF3, "The absolute need for accessibility to hardware such as tablets and computers",

EF2, "A decrease in both the expenses for printing and its impact on the environment",

Table 2. Results of reliability and normality analysis

Code of Factors	Factor	Number of Items	Cronbach's Alpha	Skewness	Kurtosis
TT	Technical and Technological Infrastructure	11	0.930	-0.580	-0.556
HP	Health and Psychology	12	0.959	-0.381	-0.916
P	Pedagogy	9	0.908	-0.874	0.162
ICS	Interaction, Communication and Satisfaction	10	0.926	-0.750	-0.048
EA	Educational Adaptation	22	0.958	-0.606	-0.018
EF	Economic Factors	3	0.835	-0.787	-0.385
OF	Other Factors	2	0.930	-0.398	-1.126

Table 3. Relative importance index of SCs

Classification of SCs	The mean of the total factor score	Code of SCs	$\bar{X}$	SD	Overall IRI	Rank of importance
Technical and Technological Infrastructure (*TT*)	38.83	T1	3.10	1.32	55.81	51
		T2	3.23	1.31	58.22	33
		T3	3.42	1.40	61.05	21
		T4	3.69	1.42	73.01	2
		T5	3.19	1.44	57.31	43
		T6	3.78	1.25	74.17	1
		T7	2.68	1.26	47.89	69
		T8	3.08	1.39	53.45	63
		T9	3.33	1.40	58.06	37
		T10	3.09	1.38	54.91	56
		T11	3.25	1.31	59.14	28
Health and Psychology (*HP*)	37.73	HP1	3.26	1.40	57.80	40
		HP2	2.76	1.28	49.52	68
		HP3	3.03	1.41	54.17	60
		HP4	3.17	1.41	56.19	48
		HP5	3.10	1.42	54.79	57
		HP6	3.12	1.41	55.28	53
		HP7	3.41	1.39	60.66	24
		HP8	3.15	1.40	56.26	47
		HP9	3.16	1.37	55.87	50
		HP10	3.24	1.41	56.65	46
		HP11	3.24	1.35	55.94	49
		HP12	3.11	1.32	54.24	59

Table 3. (Continued)

Classification of SCs	The mean of the total factor score	Code of SCs	$\bar{X}$	SD	Overall IRI	Rank of importance
Pedagogy (*P*)	29.87	P1	3.22	1.27	63.57	15
		P2	3.09	1.27	60.98	22
		P3	3.46	1.44	60.80	23
		P4	3.02	1.29	58.85	31
		P5	3.27	1.37	57.04	45
		P6	3.17	1.28	62.59	19
		P7	3.48	1.25	67.14	9
		P8	3.56	1.30	66.42	11
		P9	3.60	1.30	68.18	7
Interaction, Communication and Satisfaction (*ICS*)	33.29	ISC1	3.22	1.31	57.50	42
		ISC2	3.32	1.41	57.95	38
		ISC3	3.06	1.39	54.58	58
		ISC4	3.37	1.36	59.84	26
		ISC5	3.30	1.37	58.17	34
		ISC6	3.43	1.29	65.48	12
		ISC7	3.60	1.25	68.60	6
		ISC8	3.25	1.31	58.16	35
		ISC9	3.28	1.31	65.10	13
		ISC10	3.47	1.29	67.41	8
Educational Adaptation (*EA*)	69.32	EA1	3.55	1.29	69.02	5
		EA2	2.99	1.37	53.85	61
		EA3	3.19	1.35	59.02	30
		EA4	3.08	1.32	60.29	25

Classification of SCs	The mean of the total factor score	Code of SCs	$\bar{X}$	SD	Overall IRI	Rank of importance
		EA5	3.29	1.34	61.40	20
		EA6	3.19	1.40	55.57	52
		EA7	3.44	1.35	63.46	16
		EA8	3.25	1.34	63.09	17
		EA9	2.86	1.25	51.77	65
		EA10	3.31	1.26	62.90	18
		EA11	3.24	1.33	59.79	27
		EA12	3.44	1.34	66.70	10
		EA13	3.03	1.36	53.46	62
		EA14	2.81	1.34	51.41	66
		EA15	2.84	1.36	50.55	67
		EA16	3.31	1.34	63.97	14
		EA17	2.97	1.31	53.19	64
		EA18	3.25	1.37	58.11	36
		EA19	3.04	1.28	55.28	54
		EA20	3.01	1.29	55.23	55
		EA21	3.06	1.28	57.04	44
		EA22	3.19	1.38	57.53	41
Economic Factors (*EF*)	10.60	EF1	3.20	1.33	59.11	29
		EF2	3.66	1.40	69.38	4
		EF3	3.74	1.35	69.91	3
Other Factors (*OF*)	6.63	OF1	3.30	1.40	57.83	39
		OF2	3.34	1.45	5873	32

EA1, "It provides convenience for students to deliver course outputs (homework, etc.) to instructors".

On the other hand, the least important SCs were found to be *T7*, "The emergence of cyber security risks".

Hypothesis Testing

Hypothesis testing was used to determine whether there was a statistically significant relationship between the SCs of OAE and the digital platforms used.

Since the data have a normal distribution, one-way ANOVA, one of the parametric hypothesis tests, was conducted and below mentioned hypotheses were established.

H_0: There is no significant relationship between each of the main factors influencing the successful implementation of OAE and the digital platform used.

H_1: There is a significant relationship between each of the main factors affecting the successful implementation of OAE and the digital platform used.

The hypothesis test for the variable of the digital platform used in OAE, which has multiple groups, employed one-way ANOVA. Variables with significance levels (p) equal to or less than 0.05 were considered significant. Significance levels (p) below 0.05 imply the rejection of the null hypothesis (H0) and the acceptance of the alternative hypothesis (H1), indicating a statistically significant relationship between the SCs influencing OAE and the examined independent variable.

To conduct one-way ANOVA with the factors, hypothesis testing was performed by calculating the total scores of the SCs within each factor (Table 4).

According to the one-way ANOVA results (Table 4), since the significance value of TT (Sig = 0.000), HP (Sig = 0.000), P (Sig = 0.000), ISC (Sig = 0.000), EA (Sig = 0.000), EF (Sig = 0.004), and OF (Sig = 0.000) is less than 0.05, there is not enough evidence to accept the H0 hypothesis. In other words, there is a statistically significant relationship between all the factors that affect the success of OAE and the digital platforms used by the participants.

Table 4. Hypothesis test results of digital platforms and factors

Factor	Digital platforms												Sig.
	Zoom			Google Meet			Microsoft Teams			Other			
	$\bar{X}$	*n*	SD	$\bar{X}$	*n*	SD	$\bar{X}$	*n*	SD	$\bar{X}$	*n*	SD	
TT	33.91	155	11.33	40.84	3	9.58	42.28	3	7.87	25.81	1	13.82	0.000
HP	35.21	155	14.06	45.38	3	11.18	45.23	3	9.17	28.27	1	13.69	0.000
P	29.24	155	9.29	31.08	3	8.18	33.30	3	5.95	20.82	1	9.55	0.000
ICS	32.22	155	10.42	34.77	3	11.30	38.19	3	6.94	23.18	1	11.28	0.000
EA	67.86	155	22.37	74.54	3	18.94	76.51	3	12.93	49.18	1	25.96	0.000
EF	10.28	155	3.66	11.77	3	3.44	11.75	3	2.41	8.27	1	4.71	0.004
OF	6.25	155	2.75	7.15	3	2.97	7.92	3	2.16	5.27	1	3.23	0.000

Note(s): $p \leq 0.05$, TT: Technical and Technological Infrastructure, HP: Health and Psychology, P: Pedagogy, ICS: Interaction, Communication and Satisfaction, EA: Educational Adaptation, EF: Economic Factors, OF: Other Factors.

Table 5. Multiple comparison test (Tukey HSD)

Dependent variable	I	J	I - J	SD	Sig.
TT	Zoom	Google Meet	-6.93	3.08	0.114
		Microsoft Teams	**-8.36***	1.69	0.000*
		Other	8.09	3.33	0.074
	Google Meet	Zoom	6.93	3.08	0.114
		Microsoft Teams	-1.43	3.30	0.972
		Other	**15.02***	4.37	0.004*
	Microsoft Teams	Zoom	**8.36***	1.69	0.000*
		Google Meet	1.43	3.30	0.972
		Other	**16.46***	3.53	0.000*
	Other	Zoom	-8.09	3.33	0.074
		Google Meet	**-15.02***	4.37	0.004*
		Microsoft Teams	**-16.46***	3.53	0.000*
HP	Zoom	Google Meet	**-10.17***	3.73	0.035
		Microsoft Teams	**-10.01***	2.05	0.000*
		Other	6.93	4.03	0.317
	Google Meet	Zoom	**10.17***	3.73	0.035*
		Microsoft Teams	0.158	4.00	1.000
		Other	**17.11***	5.30	0.008*
	Microsoft Teams	Zoom	**10.01***	2.05	0.000*
		Google Meet	-0.15	4.00	1.000
		Other	**16.95***	4.28	0.001*
	Other	Zoom	-6.93	4.03	0.317
		Google Meet	**-17.11***	5.30	0.008*
		Microsoft Teams	**-16.95***	4.28	0.001*
P	Zoom	Google Meet	-1.83	2.48	0.881
		Microsoft Teams	**-4.06***	1.37	0.017*
		Other	**8.42***	2.68	0.010*
	Google Meet	Zoom	1.83	2.48	0.881
		Microsoft Teams	-2.22	2.66	0.837
		Other	**10.25***	3.52	0.020*
P	Microsoft Teams	Zoom	**4.06***	1.37	0.017
		Google Meet	2.22	2.66	0.837
		Other	**12.48***	2.85	0.000*
	Other	Zoom	**-8.42***	2.68	0.010*
		Google Meet	**-10.25***	3.52	0.020*
		Microsoft Teams	**-12.48***	2.85	0.000*
ICS	Zoom	Google Meet	-2.54	2.84	0.806
		Microsoft Teams	**-5.96***	1.56	0.001*
		Other	**9.03***	3.07	0.018*
	Google Meet	Zoom	2.54	2.84	0.806
		Microsoft Teams	-3.41	3.04	0.675
		Other	**11.58***	4,03	0.023*

Dependent variable	I	J	I - J	SD	Sig.
	Microsoft Teams	Zoom	**5.96***	1,56	0.001*
		Google Meet	3.41	3.04	0.675
		Other	**15.00***	3.26	0.000*
	Other	Zoom	**-9.03***	3.07	0.018*
		Google Meet	**-11.58***	4.03	0.023*
		Microsoft Teams	**-15.00***	3.26	0.000*
EA	Zoom	Google Meet	-6.67	5.95	0.676
		Microsoft Teams	**-8.64***	3,28	0.044*
		Other	**18.68***	6.43	0.021*
	Google Meet	Zoom	6.67	5.95	0.676
		Microsoft Teams	-1.97	6.38	0.990
		Other	**25.35***	8.44	0.016*
	Microsoft Teams	Zoom	**8.64***	3.28	0.044*
		Google Meet	1.97	6.38	0.990
		Other	**27.32***	6.83	0.000*
	Other	Zoom	**-18.68***	6.43	0.021*
		Google Meet	**-25.35***	8.44	0.016*
		Microsoft Teams	**-27.32***	6.83	0.000*
EF	Zoom	Google Meet	-1.49	1.00	0.443
		Microsoft Teams	**-1.47***	0.55	0.039*
		Other	2.00	1.08	0.250
	Google Meet	Zoom	1.49	1.00	0.443
		Microsoft Teams	0.01	1.07	1.000
		Other	3,49	1.42	0.068
	Microsoft Teams	Zoom	**1.47***	0.55	0.039*
EF	Microsoft Teams	Google Meet	-0.01	1.07	1.000
		Other	**3.48***	1.15	0.014*
	Other	Zoom	-2.00	1.08	0.250
		Google Meet	-3.49	1.42	0.068
		Microsoft Teams	-3.48*	1.15	0.014*
OF	Zoom	Google Meet	-0.90	0.77	0.640
		Microsoft Teams	**-1.67***	0.42	0.001*
		Other	0.97	0.83	0.647
	Google Meet	Zoom	0.90	0.77	0.640
		Microsoft Teams	-0.77	0.83	0.787
		Other	1.88	1.09	0.315
	Microsoft Teams	Zoom	**1,67***	0.42	0.001*
		Google Meet	0,77	0.83	0.787
		Other	**2.65***	0.88	0.016*
	Other	Zoom	-0.97	0.83	0.647
		Google Meet	-1.88	1.09	0.315
		Microsoft Teams	**-2.65***	0.88	0.016*

Note(s): $p \leq 0.05$, The asterisk (*) indicates that the difference between the group means is statistically significant. TT: Technical and Technological Infrastructure, HP: Health and Psychology, P: Pedagogy, ICS: Interaction, Communication and Satisfaction, EA: Educational Adaptation, EF: Economic Factors, OF: Other Factor.

The results of the multiple comparisons (post hoc) according to the group means of the factors for which a relationship was identified and presented in Table 5.

Post-hoc test results indicated that students using Microsoft Teams during OAE faced more technology and technical infrastructure issues compared to those using Zoom and other applications. Similarly, students using Google Meet experienced more of these issues than users of other platforms except Zoom and Microsoft Teams.

Furthermore, students using Google Meet and Microsoft Teams in OAE reported more significant health and psychological issues compared to those using Zoom and other platforms.

Moreover, students utilizing Zoom, Google Meet, and Microsoft Teams as OAE platforms encountered more challenges in terms of pedagogy, educational adaptation, interaction, satisfaction, and communication, compared to users of other applications. Notably, Microsoft Teams users faced more of these challenges than Zoom users.

Lastly, students using Microsoft Teams in OAE encountered more economic and other factors-related problems compared to users of Zoom and other applications.

Determination of the Effect Size of the Factors Affecting the Success

To determine the impact levels of the factors affecting the success of OAE, an Eta Square (η^2) analysis was conducted. According to the results of the analysis, the TT factor explained 14% of the total variance, the HP factor explained 13% of the total variance, the P factor explained 8.7% of the total variance, the ISC factor explained 10.6% of the total variance, the EA factor explained 7.5% of the total variance, the EF factor explained 5.7% of the total variance, and the OF factor explained 7.7% of the total variance (Table 6).

Results

In this study, quantitative statistical analyses were used to discover the success factors of OAE. The outcomes in this domain are limited to a general view. Therefore, highlighting the success factors for OAE and understanding the relationship with digital platforms is crucial.

Table 6. Effect sizes of factors

Code of Factor	Factor	Number of items	η^2	%
TT	Technical and Technological Infrastructure	11	0.140	14
HP	Health and Psychology	12	0.130	13
P	Pedagogy	9	0.087	8.7
ICS	Interaction, Communication and Satisfaction	10	0.106	10.6
EA	Educational Adaptation	22	0.075	7.5
EF	Economic Factors	3	0.057	5.7
OF	Other Factors	2	0.077	7.7

Note(s): $p \leq 0.05$

Ranking of the SCs

Ranking the results of the SCs by using their relative importance presents that the most important and least important SCs are technology-related. It is determined that "flexibility to run the applications on a variety of devices (T6)" is the most important SCs, while "the emergence of cyber security risks (T7)" is the least important.

Alnusairat et al. (2021) highlighted that one of the key technological conveniences offered by Online Education Systems (OES) is the ability to access lectures, critiques, and juries from various devices, including mobile devices, tablets, and laptops. Additionally, Caballé et al. (2010) noted that the widespread availability of technologies such as mobile devices, tablets, and laptops has significantly contributed to online learning, enabling versatile course delivery, flexibility, ubiquity, and personalized instruction.

Peimani and Kamalipour (2021a) and Schwarz et al. (2020) have previously underscored the negative impact of data security and privacy concerns on the success of OAE. Similarly, Farrer (2020) mentioned issues like unauthorized access and weak password protection affecting user data privacy and security on digital platforms. However, this study found that data security and privacy concerns did not have a significant impact on the success of OAE. This variation in results may be attributed to the relative immaturity of earlier OAE studies. It is also plausible that the limited prior usage of digital platforms for various purposes and limited internet experience delayed the recognition of these concerns' importance. Nevertheless, with the global expansion of Online Education Systems, digital platforms have considerably enhanced their privacy and data security measures. As a result, improved

security measures and increased online method adoption have significantly reduced user apprehensions regarding these issues over time.

The Relationship between Digital Platforms Used in OAE and Factors

The results of hypothesis testing showed that architecture students using Google Meets, Microsoft Teams, and other applications had more privacy and security concerns, pedagogical and technical-technological inadequacies, difficulties using the applications, psychological and social deficits, and problems related to interactive, independent, and collaborative learning than those using Zoom.

According to Peimani and Kamalipour (2021b), the usability of the Zoom platform is better than other platforms, and satisfaction with the application is higher than others. Alnusairat et al. (2021) and Tandon et al. (2021) found that Zoom is a more user-friendly platform compared to other applications. Ferng (2020) stated that Zoom is the most adaptable platform for all levels of education, especially higher education.

Zoom platform is widely used worldwide for OES, and sessions can be organized according to specific needs (Zoom, 2023). Owing to its open-source code, it is more open to improvement than other platforms, which is already constantly updating its software in collaboration with developers around the world.

Zoom provides more digital opportunities than other online education platforms (Peimani and Kamalipour, 2021b). It also stands out from other platforms because of the opportunities it provides to users during sessions.

As a matter of fact, in all the factors identified in the study, it was observed that the Zoom platform gave better results than all the others. In this regard, it can be said that other educational digital platforms are inadequate in these fundamental aspects that are important for the success of OAE due to reasons such as application interfaces, source codes, licensing options and software features.

The Effect Sizes of the Factors

Within the scope of the results obtained, it was determined that the SCs related to technology and technical infrastructure have a high-level effect on the

success of OAE ($\eta^2 = 0.140$); the SCs related to health and psychology ($\eta^2 = 0.130$), interaction, satisfaction and communication ($\eta^2 = 0.087$), pedagogy ($\eta^2 = 0.106$), educational adaptation ($\eta^2 = 0.075$) and other factors ($\eta^2 = 0.077$) have a medium effect; and the SCs related to economic factors ($\eta^2 = 0.057$) have a low-level effect.

Because of the requirements of OAE, the importance of the technology is obvious. Indeed, the success of OAE is directly related to the level of technology used and the opportunities available. This is supported by the fact that when the SCs are ranked by importance, the most and least important ones are related to technology.

In developing countries like Turkey, economic factors are very important. However, in this study, economic factors were found to have a low level of impact on the success of OAE.

The fact that the economic factor, which was considered significantly in previous studies in the literature (Brzezicki, 2020; Schwarz et al., 2020; Ibrahim et al., 2021; Al Maani et al., 2021; Scatena et al., 2021; Mayer, 2021; Varma and Jafri, 2021; Asadpour, 2021), does not have a large effect in this study can be explained by government support, social solidarity, and the adoption of the requirements of the new educational approach.

This can be attributed to the strong measures taken by the authorities to support less privileged groups. Supporting financially disadvantaged students, especially in higher education, plays a critical role here. In other words, the government's support during the crisis reduced the level of influence of economic factors on OAE.

In addition, the diversification and widespread use of the hardware and software used in OAE over time has reduced its fees. As the number of users has increased, new software has been produced, leading to a decrease in fees. Therefore, the affordable cost has also decreased the level of impact of economic factors on OAE.

Conclusion

The forced transition to OES worldwide due to the COVID-19 pandemic has brought with it needs and obligations by the new normal. One of these needs is the use of the most appropriate method and digital platform to accurately transfer the knowledge of the relevant discipline to students studying at different levels of education and in various disciplines. However, the urgent transformation without sufficient preparation before the process has led to

differentiation in the provision of education outside international standards (Ibrahim et al., 2021; Milovanović et al., 2020; Schwarz et al., 2020). Therefore, it is considered vital for the future of AE to develop a common approach and, if possible, an optimum model to ensure in all circumstances.

In this context, it is noteworthy to determine the SCs and to choose the right digital platform for the success and sustainability of OAE. This study implemented a multistage framework to identify the success factors of OAE. First, 69 SCs affecting the success of OAE were revealed and quantified using a systematic literature review. To the best of our knowledge, none of the studies in this domain did handle the subject in this way. The SCs were then prioritized by ranking them according to their relative importance. The SCs were then factorized according to their scope and impact and their sub-dimensions were revealed. The effect sizes of these factors were then calculated, and their impact levels were determined. with one-Way ANOVA and eta-square respectively. Finally, the relationship between these factors and digital platforms was examined.

This study revealed that Zoom is the most suitable digital platform for OAE due to the educational technologies and opportunities it offers its users. “Flexibility to run the applications on a variety of devices”, “opportunity to access recorded lectures and juries at any time”, and “the absolute need for accessibility to hardware such as tablets and computers” were the most significant criteria for the success of the OAE. Although it was noted that there are aspects that need to be improved in terms of student-centred, customizable learning and potential development, it was found that Zoom is the platform that gives the best results among the applications currently used in OAE. For the sustainable success of OAE, applications that use similarly based software and are open to development should be preferred. In determining the platform to be used, the needs of education and professional discipline should be considered.

Despite these great efforts made in this study, which significantly contributed to the identification of success factors of OAE, it has several limitations. These limitations will lead to future studies. First, it was limited in terms of regional location. The research instrument (survey) was administered to architecture students in Turkey. Future studies should seek to further explore other countries to improve the generalization of findings which will build upon this work with more contributions. Moreover, the research sample included only architecture students in Turkey. Therefore, the study was limited to an exploration of students’ evaluations, and it excluded the points of view of instructors, tutors, and decision-makers. In this context, it would be

useful for future studies to examine the evaluations of other stakeholders in OAE for cumulative improvement. This study examined the digital platforms used in OAE, one of the most important variables affecting the success of the education provided. However, paying attention to other variables like age, gender, and students' grade levels can be another issue in the field of OAE.

It is believed that the unique experience gained will allow extremely important determinations to be made for the future. In particular, it is important to properly analyze the experience gained by the educational ecosystem and to develop solution mechanisms in order to avoid the same problems in the event of a possible disaster in the future.

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Chapter 7

The Features of the Professional Identity of Students in Humanities and Technical Specialties in the Structure of their Self-Awareness

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Abstract

The purpose of this study is to investigate the nuances of professional identity among students specializing in economics, information technology (IT), and psychology. The significance of the survey resides in its recognition of the complex relationship between an individual's identity and his/her chosen career path, with self-expression as a crucial component. To achieve this goal, a combination of general scientific approaches, specialized psychological methodologies, and statistical analyses was applied. The author presents a novel perspective on the interconnectedness of "identity," "self-awareness", "self-determination," and "self-actualization" through a comprehensive review of domestic and foreign literature pertinent to identity theory. The classification of identity statuses was accomplished using J. Marcia's methodology "Study of Professional Identity". The survey of 245 students from the Plekhanov Russian University of Economics reveals pronounced

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distinctions in identity statuses between humanities and technical disciplines, which are supported by rigorous statistical analysis tools. The research is novel in that it provides a more concrete comprehension of professional identity and identifies its distinguishing characteristics among students from various disciplines.

Keywords: identity, identification, self-awareness, self-determination, self-actualization, student identity, professional identity, identity status

Relevance of the Research

The need for self-expression, being the highest level of Abraham Maslow's hierarchy of needs, justifiably constitutes the nucleus of numerous studies in the field of social and psychological sciences. This issue has been the focus of works by renowned scholars such as C.G. Jung, E. Fromm, E. Erikson, S.L. Rubinstein, A.N. Leontiev, as well as many other outstanding academics. Just as personality possesses a social dimension, its self-expression occurs within society and is consequently closely interconnected with it. The partial fulfillment of this need is largely facilitated by an individual's self-determination, through which their self-awareness finds its realization. Professional identity serves as an element of the latter. Thus, the research into professional identity assumes scientific significance as one of the fundamental prerequisites for self-expression.

Studies that reveal the peculiarities of professional identity, its influence on self-esteem and self-realization, have been presented in a series of works by both domestic and foreign scholars. In particular, the issue of professional identity in the field of medicine has been explored by M. Johnson, L.S. Cowin, I. Wilson, Yvonne ten Hoeve, G. Jansen, P. Roodbol, as well as E.S. Khudyakova, T.V. Malyutina, O.Yu. Tsygankova, and L.V. Lonskaya (Johnson et al., 2012; Yvonne ten, Jansen, and Roodbol, 2013; Khudyakova, 2016; Malyutina, Tsygankova, and Lonskaya, 2022; Hammad, 2013). Similarly, in the realm of education, research has been conducted by C. Beauchamp, L. Thomas, N. Mockler, M. Izadinia, M.P. Shcherbakova, A.A. Bakmet, O.V. Shinyaeva, and E.R. Akhmetshina, addressing the same issue (Beauchamp and Thomas, 2009; Shcherbakova, 2014; Izadinia, 2013). The majority of studies in the field of professional identity are carried out within the student environment, which allows to demonstrate the dynamics of its formation, the process of identification, barriers impeding its normal

progression, causal factor environments, and the modeling and conceptualization of this very notion. Consequently, it proves the nuanced nature of professional identification, its multifaceted character, and its highly mediated coherence with professional domains. Hence, the specification of knowledge about professional identity, with the aim of identifying its characteristics among students of different professions gains relevance.

Theoretical Foundations of the Research

The concept of "identity" can be analyzed semantically, with self-awareness emerging as the most general category. There are four fundamental perspectives on this term (Prosekova, 2016):

1. The self-directedness of consciousness (B.G. Ananiev, V.S. Merlin, L.I. Bozhovich, I.S. Kon, S. Freud, I.I. Chesnokova);
2. The presence of self-analysis, which enriches self-awareness with substantive content (R. Burns, K. Rogers, S.L. Rubinstein, A.N. Leontiev, B.G. Ananiev);
3. The phenomenon that reflects an individual's relationship with him/herself (Ch. Cooley, G.H. Mead, S.R. Panteleev, and V.V. Stolin);
4. The regulatory function of self-awareness in relation to the external world (C. Rogers, K. Horney, E. Erikson, J. Loevinger, and V.V. Stolin).

According to A.G. Spirkin, self-awareness is the conscious recognition and evaluation by an individual of his/her actions, their outcomes, thoughts, emotions, moral character, interests, ideals, behavioral motivations, and a comprehensive evaluation of oneself and one's position in life.

The concept of self-awareness in the works of foreign scientists is often correlated with the "I"-concept. For example, C. Rogers defines self-awareness as an organized, consistent conceptual gestalt consisting of perceptions of the properties of "I" or "me" and perceptions of the relationships of "I" or "me" with other people and with various aspects of life, as well as values associated with these perceptions.

According to S.L. Rubinstein, self-awareness is the awareness of oneself as a subject of activity, a complex, integrative property of an individual's

mental activity that develops throughout life. It involves awareness of one's actions, outcomes, deeds, motives, and values, as well as self-evaluation.

Self-awareness, according to I.I. Chesnokova, is a process, the essence of which consists of an individual perceiving numerous images of oneself in various situations and combining these images into a unified whole - the representation and, consequently, the concept of one's own "Self." This process results in the formation of a generalized "Self-Image" (Ovchinnikova, 2021).

Analyzing the various interpretations of this concept reveals that some scholars view self-awareness as a mental process, while others view it as a mental attribute. In reality, there is no evident contradiction. Self-determination can serve as both a process and its result - an attribute (Lupanova, 2010). It is depicted as an attribute in this work, possessing high stability and acting as a predictor of behavior in typical situations.

Various perspectives on the structure of self-awareness have also been presented within a large number of scientific concepts. According to L.S. Vygotsky, self-awareness is represented by the following components:

1. Knowledge about oneself that an individual has accumulated;
2. Expansion and elaboration of this type of knowledge;
3. Consciousness of oneself as an integrated whole;
4. Formation of individuality;
5. Formation and enhancement of self-assessment ethical criteria;
6. Individual attributes of self-awareness are developed.

V.S. Mukhina views self-awareness as a structure composed of:

1. Self-identification based on physical essence and name;
2. Striving for public recognition;
3. Awareness of gender identity;
4. Psychological perception of time;
5. Social aspect of life.

As stated by V.V. Stolin, the "Self" image, is two-component and it is represented by knowledge that unifies the subject with others in a number of shared characteristics and knowledge that contributes to their individualization (Budich and Kanaeva, 2007).

In spite of the fact that for some authors, including C. Raincroft, self-awareness and personal identity are synonymous concepts, this research

reflects the point of view of E.Y. Mazur, L.B. Shneider and V.S. Malakhov, according to which they cannot be presented interchangeably.

It is important to note the primary distinction between the most recent works by Russian and foreign authors in the field of identity research. The works of Russian scientists are primarily of an analytical-synthetic nature and are primarily of a more general, theoretical nature, whereas the research of foreign academicians focuses more on solving practical problems.

The concept of "Identity" is central to the epigenetic theory of E. Erikson. He defines identity as a sense of self-sameness, authenticity, wholeness, and belonging to the world and other individuals. Such a formulation of the definition creates ambiguity in its interpretation, which is indirectly confirmed by E. Erikson himself, who, in an effort to provide a clearer interpretation of identity, characterizes it from multiple perspectives:

1. Individuality is the awareness of a person's uniqueness and separation;
2. Identity and wholeness - the feeling of the regularity of one's life processes, the connection between the past, present, and future;
3. Unity and synthesis - a sense of internal balance;
4. Social solidarity - the sense of agreement with the values, norms, and ideals of society and its subgroups.

According to D.V. Kolesov, identity is an individual's experience of his/her unity with someone (himself/herself, another individual, a group) or his/her commitment to something (an idea, a principle, a "cause").

Identity is not something permanent, but it is relatively stable over time, so it can be attributed to mental states. The mental process of searching for identity is identification, which can be characterized in three overlapping psychological areas, according to V.V. Kozlov:

1. Identification is the process of adopting the norms and values of another individual or group as one's own;
2. Through identification, the subject perceives another individual as an extension of himself/herself;
3. Identification is the process by which a subject assumes the identity of another individual.

In the identification process, regular comparisons are made between the subject and other individuals or groups, leading to the establishment of

personal identity. Comparison necessitates the identification of both similarities and differences; therefore, in the process of identification, the individual not only integrates into society but also differentiates himself/herself within it, thereby fostering the development of their individuality. Thus, identity describes both the subject's cohesion with other individuals and groups and their distinctions from others.

It is essential to recognize the divergent approaches to the definition of identity in logic and psychology. In logic, identity denotes a perfect match of characteristics between two compared objects, whereas in psychology, identity is an individual's subjective evaluation of his/her resemblance to another person.

As a psychological phenomenon, identity is in a permanent state of formation. A.G. Smirnova compares it to the notion of a mathematical limit, where intermediate identities are represented by elements of a sequence striving towards a constant (final identity), but never quite achieving it.

The correlation between the psychological concepts of "self-awareness" and "identity" remains unresolved to this day. On the one hand, identity allows to reveal the semantic content of norms, values, motives of behavior and ideals of a person, on the other hand, reducing the entire value and motivational sphere of a person to identity, completely deprives him/her of any individuality, as it is itself evidence of a person's commitment to someone else, which ultimately creates a scientific paradox.

L.B. Schneider observes in her study of professional identity that in psychology and philosophy, self-awareness traditionally connotes a person's detachment from the surrounding world, an individual evaluation of one's personality, actions, activities, emotions, goals, and interests. Identity is simultaneously understood as the experience of identity, certainty and integrity, i.e., the unit of identity analysis is the "Image of the Self".

Considering identity as a component of self-awareness allows for a partial resolution of this issue. However, this practice in the ethnic aspect, took place in the works of O.A. Kornilova, A.P. Artyukov and E.A. Vasilevskaya (Kornilova, Artyukov, and Vasilevskaya, 2019). In actuality, such a course of action appears wholly reasonable. Because an individual's identity reflects their commitment to others, it is possible to judge their uniqueness in relation to others based on their identity. During the process of identification, the subject simultaneously evaluates their similarities and differences with other individuals, establishing their closest norms, ideals, and values. In accordance with V.V. Stolin's theory, identification is a mechanism of self-awareness. The fact that identity does not completely define but influences the system of

motivation, norms, and values, as well as self-evaluation and one's place in life, indicates that identity, viewed as a component of self-awareness, does not contradict its definitions and views on its structure but rather fits organically within the existing concepts. In addition, it resolves the issue of the "individual-society" relationship, in which society contributes to the formation of a person as a social being, an individual, but the final option for the formation and development of one's "Self" rests with the individual.

The above mentioned formalization of the correlation between the concepts of "identity" and "self-awareness" allows us to make a systematic transition to the self-determination of the individual, thanks to which the need for self-expression is realized.

Self-determination is a multidimensional concept; some scientists, including L.I. Bozhovich, M.M. Shibayeva, and V.F. Safin interpret it as a process involving decision-making, which includes establishing objectives and determining the most effective means to achieve them. According to an alternative viewpoint shared by N.S. Pryazhnikov and T.M. Bukkas, self-determination is the pursuit and realization of one's inherent self (Antonova and Belousova, 2011). Accordingly, self-determination is a prerequisite for the formation of identity and self-awareness, as well as the result of the latter's activity: in the search and awareness of the self, individual self-awareness is constructed, in accordance with which he/she sets future goals and determines the ways to achieve them. Thus, the most general definition of this term is presented: self-determination is both the process and the result of a person's choice of his/her position, goals and means of existence in certain life circumstances.

An individual's self-determination occurs in three primary directions:

1. Life self-determination, in which the individual chooses the optimal way of living;
2. Personal autonomy, the determination of a person's value orientations;
3. An individual's professional autonomy, within which he/she designates a suitable specialization for himself/herself.

The correlation between the concepts of "professional self-determination" and "self-actualization" is dual. On the one hand, self-actualization is an important component of professional self-determination, on the other hand, partial self-actualization is its result. This ambiguity arises due to the fact that self-actualization is presented in the works of various scholars both as a

process and as a need, which, however, cannot be fully satisfied. At the same time, the professional self-determination of an individual, which as a process includes his/her identification, cannot be fully realized and thus stop its further course.

This issue finds its resolution if we consider these two processes as concomitant. The need for self-actualization influences the professional self-determination of the individual, which results in partial satisfaction. Over time, satisfaction in self-actualization decreases, and the need reappears, stimulating further self-determination of the individual. This view of the problem is largely consistent with the humanistic approach of K. Goldstein, who considered self-actualization as the main motivating force of personality development (Bikbulatova, Rabadanova, and Imanbekov, 2017).

Thus, the relationship between "identity," "self-awareness," "self-determination," and "self-actualization" assumes a systematic nature. Self-awareness contributes to the formation of identity through identification. Self-actualization, which, like self-determination, is a lifelong process, is closely associated with self-awareness, which is both a prerequisite and a consequence of self-determination.

It is possible to conclude the presented system of concepts by explicating the relationship between self-determination, identification, and personal identity. An important note here is that its closure does not entail its complete isolation within an individual's psyche. Consideration of such a system as sovereign would be metaphysical and phenomenological, contradicting the fundamental principles of psychological science, if it were not for this premise. The authors' methodology for examining the issue of professional identity permits the investigation of the essence of the key scientific categories associated with it, thereby facilitating their interpretation.

Due to self-determination, an individual's self-awareness is formed, with identity as one of its components, developed through the identification process. Hence, the latter is a component of autonomy. Notably, unlike identification in the general psychological sense, the variety of identification underlying professional identity, namely professional identification, is not a foundational element of self-determination. Individuals assimilate societal experiences during the process of personal development, gaining knowledge of the world's interconnections and interdependencies. Individuals who initially demonstrated the lack of interest in specific scientific or professional fields face the challenge of finding a career that allows them to express their talents, pursue their inclinations, and satisfy their passions when they realize they require employment to meet their needs. At this point in a person's

existence, the identification process takes on a new form. Self-awareness is the necessary condition for the formation of professional identity, which is attained through professional identification, which is an advanced form of one of the components of self-determination.

During the student years, when individuals begin to study disciplines closely related to their interests within a particular social environment, it is more practical to conduct a thorough scientific investigation of professional identity and its conscious formation. In the early stages of a person's existence, determining their professional identity can be reduced to identifying their orientations, which manifest as value orientations and preferences. Students' lack of specialized scientific knowledge, which plays a significant role in the formulation of their professional identities, is a consequence of their general understanding of various scientific fields.

In today's society, where differentiation and bureaucratization are natural tendencies, the concept of "specialization" is becoming increasingly restricted, which significantly complicates the formation of a person's professional identity. Other challenges students confront in this process can be categorized into four main groups.

1. Discord between a person's professional inclinations and their parents' perceptions of the ideal job for them;
2. Insufficient interest in the complete range of school subjects, as a result of both subjective and objective factors;
3. Uncertainty regarding their chosen profession due to social peer pressure;
4. Insufficient support for career counselling in the educational institution.

Individual volitional qualities and factors of professional self-determination, including:

1. A person's rational perception of the relationship between their actual capabilities and professional goals.
2. The attitude of the immediate microsociety as well as the larger society towards a particular occupation;
3. The presence of a sufficiently developed professional plan to foster inner motivation in professional self-determination;
4. A high degree of self-awareness regarding the actual activities of a laborer in a particular profession (Klimov, 1996).

Among the external factors that contribute to an individual's professional identity in contemporary realities, the following can be highlighted:

1. Services fostering professional orientation built on the foundation of schooling;
2. Efforts by universities to provide specific, substantive information about professional training;
3. Multiple organizations offer internships to students, including those with less education;
4. The implementation of an effective motivational system in numerous businesses (Pryazhnikov, 2003).

Therefore, the formation of professional identity is one of the components of self-determination, which is both a prerequisite for and a consequence of self-awareness. University education is one of the significant phases of human existence during which professional identification takes place. When confronted with barriers impeding the acquisition of professional identity, a student either overcomes them through volitional qualities and factors of professional self-determination, or modifies his/her professional preferences, thereby optimizing the course of his/her subsequent professional identification, during this period. Due to the nuanced nature of professional identity in an industry context, it is pertinent for students of various professions to identify its distinctive characteristics.

Methodological Foundations of the Research

Initially, the authors of this research paper reviewed the analytical works of both domestic and foreign scholars in the field of the conceptual framework that forms the theoretical basis of the research. The analysis of this material allowed for the synthesis and systematization of the obtained information. Consequently, at the theoretical level of the research, methods such as analysis, synthesis, comparison, generalization, systematization, classification, and formalization were used.

For the purpose of investigating the professional identity of students, a methodology developed by J. Marcia was employed. It is based on J. Marcia's concept of identity statuses. He focuses his attention on the number of problems a person has resolved, but he does not reduce the entire concept of identity to this aspect. During the process of overcoming life difficulties, an

individual becomes more aware of their strengths and weaknesses, enhances their volitional qualities, and goal-setting skills. As a result of this overcoming, they form their integrity, strengthening the structure of their identity. Thus, J. Marcia identifies four identity statuses (Marcia, 1980):

1. *Identity achievement*: Individuals with this status have successfully overcome the identity crisis, resolved numerous internal and external difficulties. Their goals and beliefs are fully conscious and personally significant, providing them with confidence, stability, and optimism.
2. *Identity moratorium*: This status is characteristic of individuals who find themselves in an identity crisis but maintain the desire to overcome it. These individuals focus on gathering information that will enable them to fulfill this desire, often through sources such as literature, friends, and family.
3. *Identity foreclosure*: This status is associated with individuals who have not experienced an identity crisis but possess a set of goals, values, and beliefs. Their semantic component and personal significance may be similar to those who have achieved identity. An important distinguishing feature of this status is the way it is formed, not through overcoming difficulties but through identifying oneself with family members or other influential individuals.
4. *Identity diffusion*: Individuals in this state experience a range of negative emotions, including pessimism, apathy, melancholy, alienation, anxiety, a sense of vulnerability, and hopelessness. These emotions stem from the absence of stable values and beliefs and a lack of active motivation to form them.

J. Marcia's methodology consists of a questionnaire comprising twenty statements, each offering four response options. Respondents are asked to select the option that most closely aligns with their point of view. Subsequently, the primary data are processed, and they are recoded into a scoring system that allows for a qualitative interpretation of the results.

The advantages of this methodology include:

1. High informativeness for determining the status of professional identity;
2. Popularity among both researchers and practicing psychologists;
3. Efficiency in terms of time-saving for respondents;
4. Reflection of the holistic structure of identity.

Despite the popularity of J. Marcia's method among researchers in the field of identity and its appropriateness for this study, it is essential to note its limitations. These limitations include:

1. the inability to examine each specific element of a respondent's professional identity;
2. outdated nature in the context of its adequacy in an era of digitalization and information technology, and its inability to deal with ordinal scale data.

The statistical tools used in this study include the Pearson's chi-squared test (χ^2), the Kolmogorov-Smirnov normality test (with Lilliefors correction), and frequency analysis.

The Kolmogorov-Smirnov normality test allows for the examination of whether the sample adheres to a normal distribution by comparing the actual data with their theoretical expectations. This is considered legitimate due to its suitability for large samples ($n > 50$) and the nominal scale of the data.

The application of Pearson's chi-squared test is justified by the nominal nature of the data, as the Mann-Whitney test, suitable for ordinal data, lacks scientific rationale in this context. Furthermore, the data distribution does not conform to a normal distribution, making the use of Student's t-test inappropriate. The formula for Pearson's criterion of agreement is as follows:

$$\chi^2 = \sum_{i=1}^{k} \frac{(O - E)^2}{E} \quad (1)$$

where O is the empirical frequency, E is the theoretical frequency, k is the number of digits of the trait.

The validity of applying frequency analysis in this work is based on the authors' endeavor to identify the most general trend in students' professional identity. Thus, on the nominal data scale it becomes possible due to the definition of the mode of the general population.

Research Results

The study involved 245 students from the Plekhanov Russian University of Economics (PRUE) who were enrolled in three different professional

programs: Economics, Psychology, and Information Technology. The ages of the respondents ranged from 18 to 22 years, however, the primary criterion for grouping them was their professional field, rather than their age, in line with the authors' commitment to an activity-based approach in psychological science.

Table 1 presents the calculation of the frequency of processed responses from the general population of respondents, which allows for the reflection of the overall tendency in professional identity among students in various fields:

Table 1. Frequency analysis of the general population of respondents

Identity status	Frequency	Percentages
Identity achievement	105	42,9
Identity moratorium	60	24,5
Identity foreclosure	50	20,4
Identity diffusion	30	12,2
Total:	245	100

Based on the data from Table 1, it is possible to conclude that a significant portion of the surveyed students (42.9%) has achieved professional identity, as indicated by the mode, which represents the highest frequency. It is important to note that this status of identity is not permanent. In other words, students who have achieved professional identity at the time of the survey may not necessarily maintain this status over the years. For thirty of the surveyed students (12.2%), their identity is diffuse in nature. The proportions of surveyed students with identity in moratorium and foreclosure are approximately equal, at 24.5% and 20.4%, respectively. Analyzing the responses of the overall population of respondents allows us to identify its most general characteristics, but for a substantive study, it is necessary to examine the elements of the overall structure.

To achieve the main goal of this study, it is necessary to group students based on the criterion of their professional training. As a result of this procedure, three groups of students were obtained, among which IT students and students of economic specialities are contrasted with psychology students, representing two opposing professional activities: human - symbol and human - human.

Table 2 presents the results of the normality test for the distribution of responses for each of the identified groups of students, according to the Kolmogorov-Smirnov criterion.

Table 2. Kolmogorov-Smirnov Normality Test Results*

Group of students	Criterion Value	p-value
Students of "Economics"	0,326	< 0,001
Students of "Information Technologies"	0,426	< 0,001
Students of "Psychology"	0,244	< 0,001

* With Lilliefors significance correction.

The data from Table 2 demonstrate that the normality test results using the Kolmogorov-Smirnov method indicate that the distribution of responses in each of the identified groups of students does not conform to normality. Therefore, it is inappropriate to proceed with the further application of the Student's t-test to test the equality of means of independent samples. Thus, the most appropriate criterion for testing intergroup differences is the Pearson $\chi 2$ (chi-squared) test. However, before its application, intragroup characteristics of the professional identity of students were examined.

The chart below (Figure 1) illustrates the status characteristics of the professional identity of students in the economic field, with a total of 95 participants, representing 39% of the overall surveyed population.

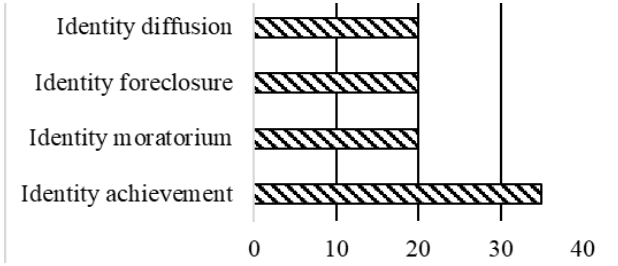

Figure 1. Status of Professional Identity Among Students of "Economics".

Among students in the field of economics, the majority (37% or 35 students) exhibit achieved identity, as they have determined their future professional paths and become acquainted with the values associated with their profession. For 20 students (21%), identity diffusion is characteristic, indicating the lack of strong professional goals and plans, as well as the reluctance to formulate or structure options for their professional development. The proportions of students with the statuses "identity moratorium" and "identity foreclosure" are evenly distributed (21% each).

Next, Figure 2 demonstrates the characteristics of the professional identity of students pursuing the "Information Technology" field of study. Their total

number is 83 individuals, representing 34% of the overall surveyed population.

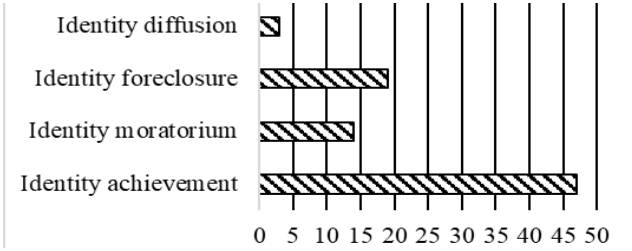

Figure 2. Professional Identity Status of Information Technology Students.

For the majority of students (57% or 47 students) studying in the field of "Information Technology," their professional identity is well-established. This can be attributed to the specificity of the profession they have chosen and the nature of their education. Programmers, for instance, tend to have clearer perceptions of their profession and future job responsibilities compared to managers and economists. The number of students experiencing a crisis of professional identity but still aiming to overcome it in this group, relative to others, is the lowest, at 16% (14 respondents). Only three students (4%) have identity diffusion. Identity Foreclosure is characteristic for 23% (19 respondents) in this group.

The characteristics of professional identity among students pursuing a "Psychology" major are depicted in Figure 3. This group consists of 67 individuals, representing 27% of all respondents.

In this group of students pursuing a "Psychology" major, the most frequently occurring status of professional identity is "moratorium" (39% or 26 students), indicating a high number of psychology students in an identity crisis situation but interested in resolving it. Simultaneously, the number of respondents with an achieved identity is the lowest compared to other groups, both in absolute and relative terms (35% or 23 students). These students may not fully grasp their future specialization; perhaps their choice of this field was driven more by a desire to understand themselves than to engage in professional psychological work. For 11% (7 students) in this group, identity diffusion is characteristic, while the remaining 15% (11 students) exhibit identity foreclosure, likely due to their professional path being influenced partially or entirely by external factors rather than being the result of independent decision-making.

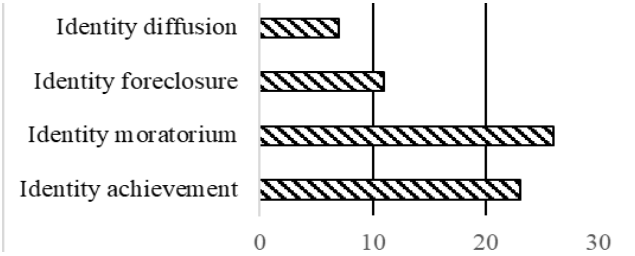

Figure 3. Professional Identity Status of Psychology Students.

To confirm or refute the hypothesis that differences in the professional identity statuses of students in the identified groups are not random but systematic, it is necessary to calculate the Pearson's $\chi 2$ statistical criterion, the data required for which are presented in Table 3.

Table 3. Pearson Correlation and Agreement

Group of students	Achievement	Moratorium	Foreclosure	Diffusion	Total
Economists	35	20	20	20	95
IT-sphere	47	14	19	3	83
Psychologists	23	26	11	7	67
Total	105	60	50	30	245

Based on the data from Table 3, $\chi 2 = 25.683$, df = 6, p-value <0.001, indicating a difference between the expected and observed frequencies and, consequently, a statistically significant difference in the statuses of professional identity among students in the fields of Economics, IT, and Psychology.

Therefore, the results of this study allow us to conclude that the formation of identity in students pursuing technical disciplines occurs more intensively than in humanities students. The former exhibit awareness of the specifics of their chosen profession and their future functioning within its framework, while the latter are characterized by a situation of identity crisis and uncertainty that they strive to overcome.

Discussion

The formation of professional identity does not solely occur within the confines of higher educational institutions. Genetically, it takes its roots back

in childhood, during play, and continues throughout the school years. Barriers to identification can arise even before entering university since they are not inherent to a specific age group. Therefore, it is imperative to consider the difficulties faced by prospective students related to choosing a field of professional training.

An essential aspect of this research is its regional nature. Since the respondents are students of the Russian Economic University, it is most rational to analyze the works of domestic scholars who have dealt with the issue of professional determination. Among them, according to the authors, the most substantive works include those by T.I. Ilyina, S.O. Kovalenko, E.V. Sokolova, T.A. Kolesnikova, and V.R. Tsiplev.

Based on the analytical research by S.O. Kovalenko, which reveals the role of subjective factors affecting the process of professional development for students in humanitarian and technical fields, the following features of professional determination specific to Russian students can be identified:

1. Students entering technical fields tend to be more financially motivated.
2. One of the primary factors influencing the choice of a humanitarian field of professional training is its accessibility, ease of learning, and admission.
3. Technical fields are mainly chosen by students who have the opportunity to study with tutors.
4. A significant portion of senior students studying humanitarian specialties ceases to have high expectations of education.
5. For students in technical specialties, the most important aspect upon university admission is acquiring knowledge, whereas for humanities students, it is obtaining a diploma and mastering a profession (Kovalenko, 2019).

One of the key problems that S.O. Kovalenko identifies on the path to the professional development of students in humanitarian fields is their lack of intrinsic motivation, which is largely related to the low demand for specialists in this field in the labor market.

Thus, the formation of professional identity in students is possible through the development of their motivational environment, enabling them to overcome internal and external barriers that arise during identification. Higher educational institutions must also contribute to this development, as this act is one form of assistance in the self-realization of future specialists. To

rationalize the program for shaping a student's motivational sphere, it is necessary to consider regional and cultural features of the environment in which it is carried out, which requires conducting additional research to deepen and refine knowledge in the field of professional identity.

Conclusion

Within the framework of this study, at the theoretical level, a systematization of the concepts of "self-actualization," "self-awareness," "self-determination," and "identity" was carried out. This allowed for the exploration of the role of identity in the self-actualization of an individual. The nuanced nature of professional identity, its coherence with the characteristics of the learning environment and the functioning of an individual, indicates the need for further additions and improvements to this field of knowledge.

To this end, a study was conducted on the characteristics of professional identity among humanitarian and technical students. The results led to the conclusion that the formation of identity in students in technical fields occurs more intensively than in humanities students. The primary reason for this phenomenon, in accordance with the perspective of S.O. Kovalenko, is seen by the authors as the lack of internal motivators among humanities students in their professional training. This underscores the necessity for educational institutions to provide support in the formation of a student's motivational environment. The implementation of programs aimed at this support requires further research, taking into account regional and cultural characteristics of the educational environment.

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Chapter 8

The Anthropology of Teacher Training in Interdisciplinary and Digital Education

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Abstract

Problem statement: Anthropological specifics of both students and teachers are not adequately taken into consideration in teacher training in the context of interdisciplinary and digital education. The article investigates the problems of anthropology in pedagogical education, i.e., the inherent nature of teacher training in interdisciplinary and digital educational environment. The results of the research. Based on the results of a survey on motivation (eagerness) to work as a school teacher conducted among school students, teachers, students, and parents (1435 respondents from Russia and foreign countries), a matrix of significant problems (core, key, autonomous, local) was obtained. Problem analysis according to Prigozhin revealed the anthropological nature of the problems, which characterize crisis situations in the system of teacher training in universities both in Russia and Western Europe. An anthropological mechanism for enhancement of the efficiency of teacher training was as elaborated following the study of crisis situations. The anthropological mechanism acted on the basis of interdisciplinary and digital integration of specialized training in schools, professional training in colleges and universities. The educational process in schools took the form of tutoring and mentoring; in such conditions school students gradually developed motivation (interest to the teaching profession) and at the same time advanced in pedagogical competence. In terms of

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content, the anthropological mechanism involves the implementation of three aspects of the professional orientation of the content of both general education and additional interdisciplinary courses and digital resources:

1) cognitive aspect, which involves the familiarization of school students with the specifics of teacher's profession;
2) moral and ethical aspect, aimed at introducing students to the norms of behavior of people involved in the educational field;
3) value aspect associated with the development of pedagogical views, concepts and understanding among school students.

In the process of implementation of these aspects it was important to develop in high school students not just respect for teachers, the objective was to cultivate their love for teaching, to awake their interest in scientific discoveries and teaching children, to form concepts of pedagogical culture, pedagogical honor, duty, responsibility, pride in the right to be called a teacher, etc.Digital educational resources developed at the University were in the form of modules focused on pre-specialization, specialized and professional training of students.

Keywords: anthropology, teacher training, teacher education, interdisciplinary, mechanism

1. Introduction

The development of various forms of interdisciplinary and digital education in the system of professional teacher training requires an objective assessment of the positive and negative aspects of the impact of these forms on the quality of pedagogical education. Unfortunately, traditional scientometric and statistical methods of assessing the quality of pedagogical education, in terms of the effects of interdisciplinary and digital forms, have so far not produced an objective view of the situation.

Purpose of the study. The study was aimed at determining the anthropological specifics of pedagogical education, developing an anthropological (functional) mechanism of teacher training in classic universities on the basis of interdisciplinary and digital integration of specialized training in schools, professional training in teacher training colleges and classic universities.

Research methods. This study rests on the philosophical and pedagogical views of Kant I., K. D. Ushinsky, L. S. Vygotskiy, B. G. Ananiev, E. V. Ilienkov, D. B. Elkonin, V. A. Sukhomlinskiy, M. I. Makhmutov et al. – the

view of a person as an educator and educatee, the organization of the educational process taking into account the internal (inherent) features of subjects of education.

2. Problem Statement

The review of scientific and methodological literature, information obtained from the media shows that there is currently an urgent need for different – anthropological – mechanisms of organization of teacher training for educational institutions, for objective diagnostic monitoring of the needs and real possibilities of educators and educatees; mechanisms of proactive and advanced development of new (identified by diagnostics) didactic materials (no matter in what form they are available – hard copy books or digitally-stored as electronic educational resources); mechanisms of experimental verification, approbation of new didactic materials (with the participation of both educators and educatees), etc.

3. Purpose and Objectives of the Research

What is required here is the anthropological methods that address the internal organic features of pedagogical education. Many scientists have mentioned this in their philosophical and pedagogical works (Kant, 1999; Ushinsky, 1974; Makhmutov, 1977; Novichkov, 2012, etc.). However, while many people in the XIX and XX centuries wrote about the need to study the organic nature of pedagogical education, in the XXI century the matter is not even mentioned.

The didactics of teacher training, not yet firmly established, was practically consigned to oblivion. Scientometry has become the defining coordinator of the development of pedagogical education.

However, it does not yet help to determine the reference frame for the development of pedagogical education, which is experiencing a deep crisis in the XXI century.

Currently, teacher training in Russia is more associated with the search for new models (Margolis, 2015; Darling-Hammond, 1999; David C. Berliner, 2002), technologies (Blinov, Dulinov, Esenina, Sergeyev, 2019; Alekseeva, 2015; Gvozdeva, 2014; Zavyalova, 2011; Gafurov, 2019), new didactic

principles and new didactics (Spivakovsky, Petukhova, Kravtsov, Voropay, Kotkova, 2016), new mechanisms (Menter, 2015; Gabdulchakov, 2019) for the organization of pedagogical education. All of them are currently controversial: Russia has no uniform methodology, no uniform frame of reference for the organization of teacher training.

The educational activity of Russian teacher training universities runs counter to the scientific one: the education is focused on the domestic market (shortage of teachers in the regions), the pedagogical science focuses on the Western (scientometric) market (methodological ideas are to be published in Scopus - and Web of Science-indexed journals). In these conditions, the status of teachers in Russia is at its historic low. Against the background of constantly growing demands on the teacher, the profession is now not protected by the pedagogical science, nor the school officials, nor the state, nor the media, nor even parents and students. The same situation pertains in many European countries.

Only that in Britain there is a saying: Teacher: Being one is the highest privilege. Having one is the best blessing. Neither the former nor the latter applies to Russia.

The cultural and historical concept of Vygotsky (Vygotsky, 1928), the modern interpretation of the phenomenon of childhood, the game as the major type of activity, in fact, not only have raised the child to the height beyond reach, but also have brought the teacher to the lowest level of the social hierarchy. Many people forget that no matter what game children are playing, they still pattern themselves on an adult, because they dream of becoming adults as quickly as possible. And in an adult person children not a child equal to them but an adult who they would like to become. Many teachers are now afraid to say that equality sometimes results in low conduct and all-permissiveness in children. Practicing educators realize that while observing the equality, the child should still have respect for the adult, especially the teacher as a provider of knowledge, wisdom and culture.

Cruel games of children, examples of disrespectful attitude to teachers in kindergartens, schools, universities are constantly discussed in the mass media ("Let them talk" - the First channel of Russian television), thereby supporting a negative image of teachers and Russian education among viewers.

Admittedly, the cooperation of teacher training universities and other educational institutions in some cases is either declarative or formal: such methodological systems as tutoring, mentoring are virtually non-functional and the anthropological properties of cooperation (in the context of teacher training) are still neither properly taken into account nor studied.

Interdisciplinary links and digital resources actively developing in the modern field of education are making a significant difference to the theory and methodology of professional training of future teachers. In this regard, the experience of scientific and methodological support of the educational process in classes specializing in pedagogics in the Republic of Belarus deserves attention (Poznyak, Egorova, Titovets, Baranova, 2018). Russia also has such experience, but it is merely based on individual enthusiasm.

4. Purpose and Objectives of the Research

4.1. Purpose of the Study

The study was aimed at determining the anthropological specifics of pedagogical education, developing an anthropological (functional) mechanism of teacher training in classic universities on the basis of interdisciplinary and digital integration of specialized training in schools, professional training in teacher training colleges and classic universities. Research Questions

4.2. Objective of the Study

The objective of the study was to determine the method for developing an anthropological mechanism of teacher training in the context of interdisciplinary and digital content on the basis of the identified significant problems of teacher training. We have already addressed a number of problems related to process organization of teacher training (Gabdulchakov, 2019). However, the anthropological aspect is still an open area of research. Anthropology involves identification of particular characteristics of the educational process and the subjects participating in the process (school students and students, as well as teachers and professors).

4.3. Research Questions

The research was aimed at the following questions:

1) What is the anthropology of teacher training in today's environment?
2) How do applicants, students, high school students, school teachers, parents, professors at teacher training universities see the problems of motivation to become a teacher?
3) How can the process of specialization and professional training of students who want to work in the school be selected and organized?
4) How can an anthropological mechanism of teacher training be built in the context of cooperation between the school and the university and the development of interdisciplinary and digital education?
5) How can the efficiency of the anthropological mechanism of teacher training be checked?

5. Methodology

The methodology of this study rests on the philosophical and pedagogical views of Kant I., Ushinsky K. D., L. S. Vygotskiy, B. G. Ananiev, E. V. Ilienkov, D. B. Elkonin, V. A. Sukhomlinskiy, Makhmutov M. I., etc. – the view of a person as an educator and educatee, the organization of the educational process taking into account the internal (inherent) features of subjects of education. Research methods: survey, interviewing, core competency model (Hamel and Prahalad, 2014); method for determining significant problems (Prigozhin, 2007), pedagogical experiment. The research was organized on the basis of secondary school No. 112, gymnasium No. 52 in the city of Kazan, gymnasium No. 3 in the city of Zelenodolsk, structural units (departments and lyceums) of Kazan Federal University (Russia).

6. Results

The review of the results of surveys (2007-2019) based on the “key competence” concept (Hamel and Prahalad, 2014) allowed us to obtain a matrix of significant problems. According to typology suggested by Prigozhin A. I. (Prigozhin, 2007) the problems were classified into three categories: embedded, sociocultural and situational, and problem formulations were classified into nominal, cause-and-effect and antithetic. Thus a matrix of the problems characterizing not only anthropological specifics of teacher training, but also crisis situations of modern pedagogical education was received.

The survey of school students, teachers, students, parents (1435 respondents were interviewed in Russia and abroad) on motivation (eagerness) to work as a school teacher led us to the conclusion that all problems arising in connection with motivation are of anthropological nature: they characterize crisis situations in the system of teacher training both in universities of Russia and in universities of Western Europe.

In the process of selection of respondents among teachers (347 persons), school students (453 persons), university professors (328 persons), parents (307 persons) it became clear that the main problem of pedagogical education in Russia is the lack of continuity between the school and the university.

The point is that applicants gain the entrance qualifications for pedagogical departments of universities by the results of the Unified State Exam, which means that the university is deprived of the right to take into account the anthropological characteristics of applicants: personal, motivational, intellectual, psychological, pedagogical, communication, etc. As a result of "blind" enrollment, the applicants motivated for becoming teachers can often become students only by paying tuition. Some get offended by the fact and deny themselves a possibility of becoming teachers, others just cannot afford to pay the tuition. Most applicants enter the department of educational studies not due to the desire to become a teacher, but since this gives them a possibility to be enrolled by the results of the Unified State Exam. Therefore, after graduation, only 10% to 12% of such graduates work in schools.

Moreover, young people who have received higher pedagogical education without the necessary motivation to work at school, join the ranks of people with unjustified social expectations (of a certain social status and material well-being); their voluntary or frictional unemployment (when they do not want to work at school and do odd jobs) causes social tension in the society and the country.

7. Discussion

Our research allowed us to develop one of the possible mechanisms for the implementation of pedagogical education – anthropological (functional) mechanism. We represent it as a mechanism, which takes into account the inherent nature of motivation of students and trainers, a mechanism of practical motivation and preparation of both school and university students for teaching profession.

The mechanism involves integration of specialized and professional pedagogical training of future teachers starting from school age. The educational process in schools took the form of mentoring, in such conditions school students gradually developed motivation (interest to the teaching profession) and at the same time advanced in pedagogical competence.

The mechanism has been tested in educational institutions of the Republic of Tatarstan for 12 years (2007-2019).

Based on the practical experience of Russian schools with in-depth study of particular subjects, gymnasiums (with advanced study of physics, mathematics, chemistry, languages), secondary schools in England (Menter, 2015), schools in Belarus (Poznyak, Egorova, Titovets, Baranova, 2018), specialized pedagogical classes (8th and 9th grades, and 10th and 11th grades) were opened in base educational institutions of Kazan Federal University (secondary school No. 112 with in-depth study of particular subjects, gymnasium No. 52 in the city of Kazan, gymnasium No. 3 in the city of Zelenodolsk) (see Figure 1).

The students selected for the classes were those motivated to enter pedagogical institutions (colleges, universities), having leadership qualities, communicative abilities and interested in certain subjects (liberal arts or natural sciences). Apart from in-depth study of the subject in the classes, additional elective courses were offered on the history of pedagogical thought, pedagogical psychology, theory and methodology of teaching, pedagogical rhetoric, etc. and short-term teaching practicum was organized for the students acting as an assistant teacher or independent teacher.

Meetings were held with famous teachers (young – winners of teacher competitions, and experienced – honored and recognized practitioners).

The model has an open basis and, upon receiving Bachelor's degree, a young teacher can continue education by applying for Master degree program, postgraduate course and further for PhD program in educational sciences.

The first level of training starts in the 8th and 9th year classes specializing in educational sciences (pre-specialization training), the second level is the 10th and 11th year classes specializing in educational sciences (with specialized training in pedagogics) – the alternative is a teacher training college (training pre-school and primary school teachers), the third level refers to university undergraduate degree programs; high school graduates can start from the first year and college graduates – from the third year (reduced curriculum). Master's, postgraduate and PhD programs in pedagogics represent the highest level of pedagogical self-realization of students; this

level involves the organization of tutoring and mentoring, as well as conducting independent research and methodological activities.

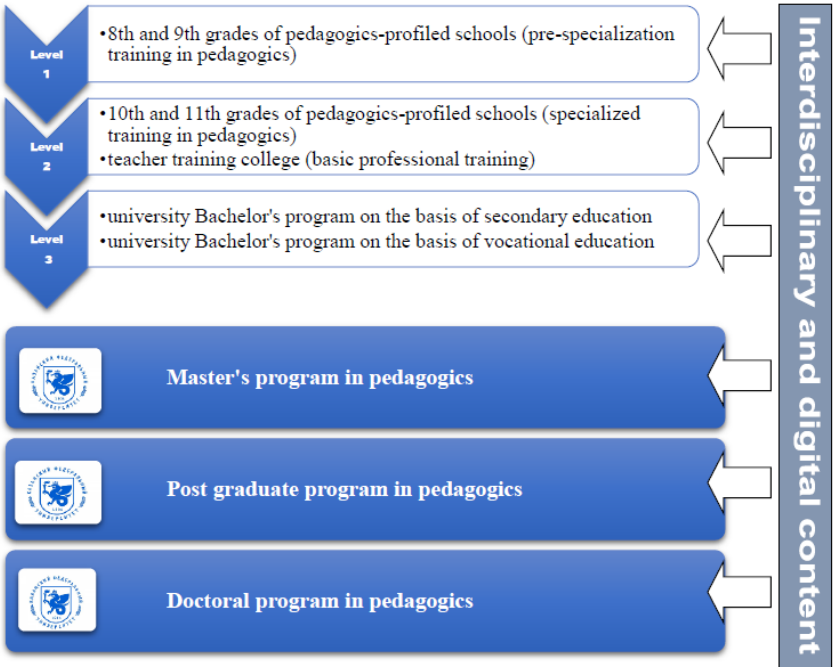

Figure 1. Model of specialized and professional training.

Almost all school teachers and university professors fulfill the role of tutors responsible for specialization of the content. Each tutor is responsible for 2-3 students. The tutor acts not only as an instructor, but also as a coacher responsible for the quality of specialized training.

The students undertaking teaching practice in the schools alternately acted as teacher's assistants, teachers and homeroom teachers.

In mentorship, a mentor is usually a university professor with an extensive experience in both school and university teaching. School students perceive him as a tutor who knows his subject (mathematics, physics, chemistry or Russian language) and the art of pedagogical interpretation of the content of this subject.

In terms of content, the anthropological mechanism involves the implementation of three aspects of the professional orientation of the content

of both general education and additional specialized interdisciplinary courses and digital resources:

- 1st aspect – cognitive, involves the familiarization of school students with the specifics of teacher's profession;
- 2nd aspect – moral and ethical, aimed at introducing students to the norms of behavior of people involved in the educational field;
- 3 – value aspect associated with the development of pedagogical views, concepts and understanding among school students.

It was important to develop in high school students not just respect for teachers, the objective was to cultivate their love for teaching, to awake their interest in scientific discoveries and teaching children, to form concepts of pedagogical culture, pedagogical honor, duty, responsibility, pride in the right to be called a teacher, etc.

Interdisciplinary approach was used in the conditions of specialized training of school students: many (not only major) general education subjects were integrated with the subjects of professional training (pedagogical psychology, didactics, methodology). Most of the professional training subjects were available for school teachers and high school students via a search engine on the website of the Kazan Federal University edu.kpfu.ru.

School students could explore primary school teacher's role as early as in the 9th grade year. Successful teaching practicum made possible their professional identification in the teaching profession: some enrolled in a teacher training college, others became firmly convinced in their choice and continued their studies in 10th and 11th grades with the purpose of getting university education, others refused pedagogical field having lost interest in the teaching profession after failing to communicate with children in primary school.

Although structurally the pedagogical class persisted as an integral unit both for 8th and 9th graders, and for 10th and 11th graders, the interest in the teaching profession among school students varied (see Tables 1, 2, 3, and 4).

While almost all 8th graders who had entered the pedagogical class showed interest in the pedagogical profession (95% to 97%), approximately 20% of the 9th graders lost this interest (after teaching practicum in primary school) with about 70% still interested. Of these 70% of school students, an average of 23% enrolled in teacher training college, the remaining 47% went continued their studies in 10th and 11th grades.

It is clear that the composition of the students attending the 10th grade was different again: one half of the class were students who had already passed the initial professional pedagogical training in the 8th and 9th grades, the other half were students from other schools who wanted to try themselves in the pedagogical class in the 10th and 11th grade years not so much from the desire to become a teacher, but from the desire to receive in-depth training in the subject.

Less than half of the school students who entered the 10th pedagogical class showed interest in the teaching profession, but in the 11th grade (upon completion of teaching practicum with 5th and 6th graders) this interest increased (by 20% on average) from 45% to 65%.

Almost all high school graduates (which amounts to about 65% of the students in the class) who had chosen the teaching profession in the 11th grade continued their education in pedagogical universities (mainly on a contract form) and continued to work in educational institutions after graduation without changing their professional field.

Table 1. Interest of school students teaching profession in school No. 112 in the city of Kazan (percentage)

Grade	Class 8	Class 9	10th grade	11th grade
Interest (2017)	95	76	45	67
Interest (2018)	90	71	48	65
Interest (2019)	92	73	46	61

Table 2. Interest of school students teaching profession in gymnasium No. 52 in the city of Kazan (percentage)

Grade	8th grade	9th grade	10th grade	11th grade
Interest (2017)	94	74	46	65
Interest (2018)	91	72	47	64
Interest (2019)	92	74	47	62

Table 3. Interest of school students teaching profession in gymnasium No. 3 in the city of Zelenodolsk (percentage)

Grade	8th grade	9th grade	10th grade	11th grade
Interest (2017)	94	75	45	66
Interest (2018)	92	72	47	67
Interest (2019)	92	74	45	63

Table 4. Interest of school students teaching profession in gymnasium No. 10 in the city of Zelenodolsk (percentage)

Grade	8th grade	9th grade	10th grade	11th grade
Interest (2017)	96	77	45	67
Interest (2018)	93	73	44	63
Interest (2019)	94	75	47	60

Figure 2 (see Figure 2) shows the same patterns of increase and decrease in interest in the teaching profession among students of pedagogical classes of 4 educational institutions (school No. 112, gymnasium No. 52 in the city of Kazan, gymnasiums No. 3 and No. 10 in the city of Zelenodolsk) over the last three years (2017-2019). Similar decrease among the 10th graders is due to the fact that more than half of the students did not have initial teacher training and chose a pedagogical class because of the opportunity to receive advanced subject training. About 60% of the 11th grade graduates consciously chose the teaching profession and successfully entered pedagogical faculties of the University.

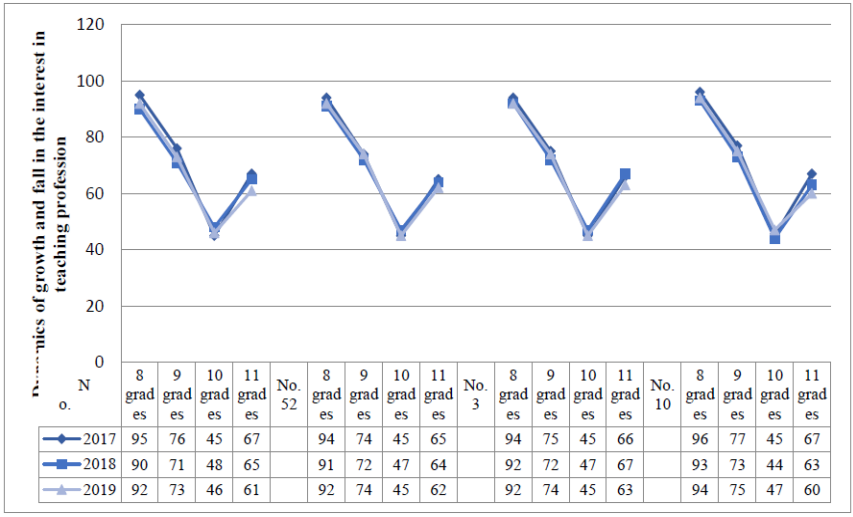

Figure 2. Dynamics of growth and fall in the interest of school students studying in specialized pedagogical classes in teaching profession.

Students who finished pedagogical classes, stood out against the general background of students due to their dedication and desire to get maximum knowledge, skills, professional competencies required to work as a school teacher. Analysis of statistical data shows that almost all graduates of the University who had had first specialized and then professional training work in educational institutions. Such nearly absolute employment of University graduates who received integrative subject, prespecialization, specialized and professional training in pedagogical classes (or pedagogical college) and then in the University, has become an important evidence of the effectiveness of the implemented anthropological mechanism.

The research shows that many problems of teacher training are connected with the problems of anthropology of pedagogical education: state-financed admission is reduced year by year, the cost of training on a contractual basis is growing; the existing system of random admission of applicants (without regard to anthropological characteristics) in Russia should be changed radically.

The anthropology of high school students inspired for the pedagogical profession (with focus on the development of high moral qualities - kindness, justice, decency) is such that they are not always ready to socialize in market conditions and to do business or part-time work concurrently with the main job. Therefore, a differentiated approach is required for such applicants, taking into account the social order of the State as defined in the National project "Education." Higher pedagogical education should be anthropological and accessible to people of different social backgrounds in Russian society.

Furthermore, the pedagogical specialization in schools with in-depth study of subjects or gymnasiums is virtually nonexistent and is maintained and developed only at the level of enthusiasm: no financial instrument devised to support this activity is available at the moment.

Conclusion

Anthropology of teacher training in the context of interdisciplinary and digital education shall take into account:

- motivation of students to undertake pedagogical activity not in the last year of University studies (as we have it now in Russia) but

starting from school years (as it is done in some schools of England, Belarus and other countries);

- aspects of interdisciplinary training: it should be integrated, cross-curricular (major subjects should be integrated with additional psychological and pedagogical courses);
- specifics of modern digital education: training should be provided with digital resources (the student should use the network resources of the University pertaining to the teaching profession);
- personification: training should be natural, individualized, personality-oriented, i.e., it should take into account the actual interests and needs of students, meet their cognitive needs and activate the zone of immediate development;
- phasing (consistency) going from pre-specialized training and specialization in school to professional self-determination and training in college or university.

The anthropological (functional) mechanism of implementation of pedagogical education has become the main result of the conducted research. It is presented as a mechanism of practical motivation and training of school students and students for teaching profession.

The mechanism involves integration of specialized and professional pedagogical training of future teachers (pre-school, primary and secondary school teachers) starting from the 8th and 9th, and 10th and 11th grades of general high school using the means of interdisciplinary and digital education.

This mechanism can be used in establishing cooperation between the school and teacher training university.

The results obtained in the study made it possible to formulate recommendations for the effective use of the anthropological mechanism of teacher training. The mechanism should take into account:

1) the inherent nature of pedagogical education, motivation, concerns of the subjects involved in it;
2) organization of pre-specialization and specialized pedagogical classes in schools;
3) interdisciplinary and digital integration of specialized pedagogical training in schools with professional pedagogical training in teacher training colleges and classical universities.

Part 1. Personification of Multicultural Education in the Universities of Russia (Analysis of Training Specialists for Kindergartens)

Abstract

The efficacy of polycultural linguistic education at university increases, if on the base of this education, lays a personification, including such components as polyparadigmatic, noxologic, reflexive, strategic, spiritual-moral, personality-oriented, subjective, anticipative, competentive. All this allows to consider personification as a trend of education to development and realization of potential of each student in solving living and professional problems; as organization of pedagogical interrelation, taking into account individual students` peculiarities, teachers and tutors; as usage pedagogical support technology, activation of students` professional activity in the process of solving educative-professional tasks.

Keywords: polycultural linguistic education, personification, components: polyparadigmatic, noxologic, reflexive, strategic, spiritual-moral, personality-oriented, subjective, anticipative, competentive

1. Introduction

Linguistic environment in Russian modern universities becomes more and more polycultural. E.g., in Tatarstan (subject of Russian Federation) with each year the number of students from CIS, neigbouring and foreign countries is increasing. Polycultural linguistic environment becomes an indispensable sign of modern university. The problem of polycultural language quality increase and on its base professional education disturbs many people, including students.

2. Method

According to the data of our survey (2012-2013, 342 respondents) 59,5% foreign students experience nationalism and racism, 36,5% don`t experience, 4% no answers (look at Diagram 1). To the question whether nationalism influences education quality, 87,3% answered, that it influences negatively

also on language quality and professional education (experienced – 87,3%, not tested – 7,3%, no arswer – 5,4%) (Diagram 1, 2).

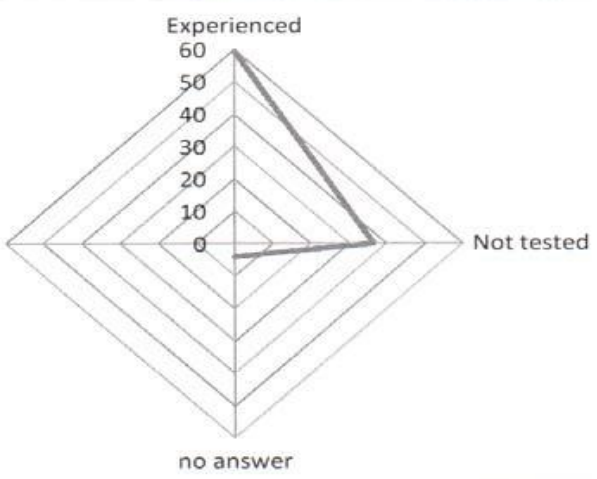

Diagram 1. Survey of foreign students.

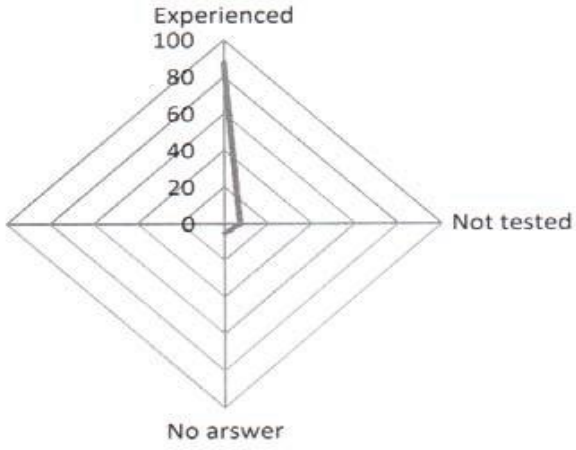

Diagram 2. Survey of foreign students.

3. Results and Discussion

Approximately the same data you can find in other higher educational establishments of Russia.

Christine E. Sleeter, in this connection writes about the USA: "Multicultural education is a relatively new field that has faced a constant struggle for legitimacy, even though the issues it addresses regarding human difference, social justice, and the form education should take in a pluralistic society, are as old as the United States.

Conservative educators criticize or dismiss multicultural education as radical and misdirected. Twenty years ago, Harry Broudy (1975) argued that the stress on cultural diversity is divisive and will lock out minority groups from the system by failing to teach them "to participate not only in the culture of this country but also in the intellectual and artistic achievements of the human race" (p. 175). Recently conservative critics such as E. D. Hirsch (1990) have put forth the same objections, claiming that in their attempts to teach children about diverse groups, schools have produced culturally illiterate Americans who have little sense of a shared culture. Such criticisms are hardly surprising: since multicultural education challenges conservative beliefs, one would not expect it to garner much conservative support" (Sleeter, 1996). "Culturally illiterate Americans» about whom the author of the book tells are similar to culturally illiterate Russians, generation of which were grown up under reforms" of schools. Similarities of situations in various countries actualize problems, tackled in personology. Personology as a science, researches not only a pupil bit a teacher and also an environment where they interconnect. Personification on its own is perceived as a technology that can increase the quality both linguistic and professional education.

What components can be included into technology of education personification?

The term "personology" is firstly appeared in the works by Henry Murray, doctor, DPhil in the field of biochemistry, psychoanalyst, researcher of Mellvilles' works, the head of Psychological clinic at Harvard University (Murray, 1938).

The appearance of the term was caused by author`s aspiration to underline the necessity of goal-oriented complete study of an individuality, which firstly has not only social but also biologic nature and secondly, lives and develops in a definite environment and definite sociocultural context. Alongside with this, personology by G. Murray, in a larger degree, presents the theory of motivation than the theory of individuality. In pathopsychology he is a creator

of thematic apperception test (TAT), which was widely used in clinic and afterwards, was adapted by American psychologist D. Mackleland and J. Atkinson to study main motives of a man on the largest degree (content analysis). Murray was the first who began considering motives as a stable individual disposition. But, together with this, in the article ("Toward a classification of interaction," in: "Toward a general theory of action," Cambridge, Mass., 1951), he made a conclusion that a goal-oriented behavior can be explained as a result of individual (demanding condition) and situational ("pressure").

During analysis of educational practices at 3 universities we can point out personification detectors of educational intercourse in higher educational establishment, among which: personification detector (the degree of self-realization of students' personality); empatic detector (teacher's ability to put a student on your own place) and look at the world with his eyes); reflexive detector (emotional field of study); field of joy, surprise, astonishment and happiness; cognitive detector (calculation of valuable installation of students and teachers personalities); interactive indicator (a unity of conscious, unconscious perception); nuclear indicator (realization of communicative core in intercourse and educational-cognitive activity; integrative indicator (integration of educative maintenance); nature indicator (calculation of individual rate in personality`s development); attractive indicator (attractiveness of lesson`s maintenance and form); effective indicator (practical direction of lesson`s maintenance). These indicators appeared on the basis of correlative analysis by Spirman, determines dependence of creative (personified) self-realization mechanism in students from creativeness (pedagogic skills of a teacher) (Miller, 1997; Murray, 1951; Murray, 1943; Lemen fuer die Arbeitswelt, 1995).

Identified indicators allow to prove that effectiveness and availability of personified education in Russia are determined by following components (Gabdulchakov, 2011; Gabdulchakov, 2013):

- *polyparadygmatic* if consider it as a research methodology, suggesting openness to different sights, prediction problem and design of a future higher school; argumentation of innovative strategy in higher educational development in a conceptual synthesis from a majority of existing educational paradygms; directions to a practical application result of creating strategies and innovative technologies to different kinds of pedagogical practices and various models of

higher education; exposure of priorities in innovative strategies in formation a unique educational space in a global world.

- *noxologic,* which must be taken into consideration in building of personified education: this education must be not only safe but aimed at skills to take care of health, to the formation of health culture.
- *reflexive:* reflexive technology of organization in professional-personality self-development of a future teacher represents a special organization – pedagogical processing mechanism of realization of interrelated reflexive stages between each other in perfection of professional activity of a teacher: 1) reflexive-analytical (diagnostic stage); 2) constructive-structural (educative stage); 3) stabilization (criteria-evaluative stage); 4) system-defined reflexion (perspective-projecting stage);
- *strategic:* in living strategies of future teachers inner contradictions are revealed; between terminal and instrumental, between traditional and modern evaluate installations are appeared under influence of objective and subjective risk factors in combination with material conditions of vitality at different youth groups;
- *spiritual-moral:* support on culture demands a pedagogically-organized process: only here purport of personified ideals of culture occurs, conditions for spiritual-moral development and education of students are created;
- *personalised* this component allows to consider a training for a future teacher as a personality development, performing in a role of active subject of educational activity, aimed at education, self-development during all life.;
- *personality-oriented:* a subjective position of a future teacher includes motivated-valuable, cognitive and regulative aspects, which determine its levels and characteristics.
- *subjectival:* criteria of effectiveness in personality-oriented approach in development of student`s education, including into the structure of personalized education can be: consciesness of life, acknowledgement evaluations of growth and development; positive perception of yourself, others, chosen profession, consideration of possibility to realize own interests, inclinations and values; internus; creativeness; openness to life and able to constant study.
- *anticipatiory:* anticipation strengthens personification of education, if to create conditions for realization first of all regulative components

in anticipation, i.e., due to special organization of joint educational activity giving students a possibility to take part in targeting, planning of educational activity and its control; provide prediction to students about content, kinds, results of educational activity at all stages of lesson, taking into consideration interrelation of regulative, cognitive and communicative components of anticipation.

- *competentive:* this component suggests inclusion of professional–oriented educational tasks complex, providing realization of integrative links to disciplines; realization of contextual technology, detecting choice of forms, methods, training aids, aimed at formation motivation-evaluative orientations, subject knowledge, abilities, skills, students` personality; containing the base of cultural and professional competences of graduates; computer technology introduction into professional-oriented educative process, considering content and processing components; organizations of systematic monitoring of subjective educative results, meeting demands of the new Russian standards. As a result we received: 9,5% foreign students experience nationalism and racism, 86,5% don`t experience, 5% no answers (look at Diagram 1). To the question whether nationalism influences education quality, 17,3%, not tested – 77,3%, no arswer – 5,4%).

Conclusion

All this allows to consider personification as a trend of education to development and realization of potential of each student in solving living and professional problems; as organization of pedagogical interrelation, taking into account individual students` peculiarities, teachers and tutors; as usage pedagogical support technology, activation of students` professional activity in the process of solving educative-professional tasks. Under the same conditions in realization of personified system, most likely, a special personification principal connected with realization not only personality-oriented approaches, but also individualizing, reflexive and other, but also approaches, oriented on self-creation of a student`s personality, on linguistic personality formation and development (a personality with individual way speech conduct) in a mixed linguistic environment.

Part 2. Pedagogical Skills of the Teacher and the Degree of Creative Self-realization of a Student in Conditions of University Educational Space

Abstract

The article shows the dependence of the creative activity of the student from the creative potential of a teacher. Dependency analysis allowed determining the quality of a teacher required for successful communication activities in the classroom. Consequently, the indicators of the personification of the educational communication at the university include: personal indicator (degree of self-identity of the student); empathic indicator (teacher's ability to take the student's place and see the world with his eyes); reflective indicator (emotional field of the studies, the field of joy, wonder, admiration and happiness); cognitive indicator (consideration of the individual student and the teacher's values); an interactive indicator (the unity of conscious and subconscious); core indicator (the implementation of the communicative core in communication and learning and cognitive activity); integrative indicator (integration of educational content); nature-align indicator (individual personality development rate); attractive indicator (attractiveness of content and form of classes); resulting indicator (practical orientation of the content of lessons).

Keywords: the creative activities of students, the creative potential of a teacher, communicative activity of the teacher, the quality of communication activities (personal, integrated, individual and other)

1. Introduction

In this article we examined the relationship between teacher's pedagogical skills and a student's creative selfrealization in the conditions of educational space of University - in curricular and extracurricular activities. This relationship is significant for the projecting of personalized education in the University (Gabdulchakov, 2011; 2013). The essence and purpose of the study was to identify the indicators of pedagogical skills of a teacher, that really correlate with certain indicators of creative self- realization of a student's personality.

Hypothetically we assumed that the degree of creative self- realization of a student is high if the level of teacher's pedagogical skills is high. For that matter we also tried to answer a question of whether there is any correlation between these two phenomena (the student's creative self- realization and the teacher's pedagogical skills).

The novelty of the research consists in defining the indicators of pedagogical skills of a teacher, which really improve the effects of creative self- realization of the student. The study was performed in Kazan (Volga Region) Federal University in the course of Humanities teaching in Russian and English. 354 curricular and 122 extracurricular classes were analyzed.

2. Method

- rank correlation by Charles Edward Spearman;
- the Sixteen Personality Factor Questionnaire by R. B. Cattell;
- the Values scales based on the M. Rokeach method.

3. Key Terms

Personification of education — arrangement of conditions for creative self-development, self-actualization of the student's personality.

Pedagogical skills of the teacher - a high degree of creative teacher's attitudes towards the organization of the communication with the student.

Creative self-realization of personality of a student is a high degree of creative attitude to education, selfesteem and success in educational activities.

Indicators of pedagogical skills are the main indicators of the pedagogical skills of a teacher which correlate with a high level of creative self-realization of a student.

3.1. Personification and Developing Education

In the conditions of personification, when it is necessary to create conditions not only for the individualization of learning but also for organization of the process of personal and professional self- actualizatio, the correlation between the level of pedagogical skills of the teacher and the degree of creative self-realization of the student is of special interest.

It is known that education should be developing. If education does not help a person to realize, if it does not develop the person, the question arises, is it really education? Development processes can be lost on the developing person without becoming the events in his(her) life (Kudryavtsev, 2012). “Subjectless” development and “subjective” education out of the educational system itself is a paradox, but it is a fact of history and numerous biographies.

4. Results and Discussion

The degree of creative self-realization of a student's personality was ranged in 3 levels: the 1st is low, the 2nd is medium, the 3rd is high. As a result of approbation in 1998-2013 of different technological procedures of support and developing of students we have worked out and tested the indicators for assessing the quality of professional skill of a teacher (Kudryavtsev, 2012).

For this, we used a methodology of rank correlation.

Rank correlation by Charles Edward Spearman is one of the easiest ways to establish a measure connection between the factors (Lemen fuer die Arbeitswelt, 1995; Mclntire, 1998; Miller, 1997; Norton, Domen, 1984; Plank, Maclver, 1998; Feldhusen, 1998; Spearman, 1904; 1907; 1930). The very name of the method indicates that the relationship is defined between ranges, i.e., the sequence of the quantitative values, ranked in decreasing or increasing order. For the calculation of Spearman rank correlation it is necessary to have two sequences of values that can be ranked.

Such series of values can be: 1) two characteristics measured in the same group of subjects; 2) two individual hierarchy of characteristics, identified in two people on the same set of features (e.g., personality profiles according to Cattell's 16 PF questionnaire, the Rokeach Values scales, the sequence of preference in the selection of alternatives and other); 3) two group hierarchies of characteristics; 4) individual and group hierarchies of characteristics. First, the indicators are ranked separately for each of the criteria. As a rule, less characteristic value has a less rank.

Practical calculation of Spearman's rank correlation index includes the following stages:

1) to match each of the characteristics with its order number (rank), ascending or descending.
2) to determine the ranks difference in each pair of matching values.
3) to square each difference and summarize the achieved results.

4) $r = 1 - \frac{6\sum d^2}{n(n^2-1)}$ the correlation coefficient of ranks by the formula: where $\sum d^2$ is to calculate the correlation coefficient of ranks by the formula: where is the sum of squares of the ranks differences, and is the number of paired observations.

When we use the rank correlation coefficient we conditionally evaluate the closeness of the connection between the characteristics, considering the value of the coefficient equal to 0.3 or lessto be weak correlation of the closeness of the links; the value more than 0.4, but less than 0.7 to be moderate closeness of links and values of 0.7 or higher to be the indicators of high closeness of links.

Mathematical correlation value is expressed by its coefficient from -1 (maximum negative correlation) to +1 (maximum positive correlation) by decimal fractions accurated to the second decimal place.

Quantitative measure of correlation is typically distinguished by several levels: weak relation – at correlation coefficient up to 0.30, medium relation – at correlation coefficient from 0.31 to 0.69, and strong relation – at correlation coefficient from 0.70 to 0.99.

Table 1. Ranks of the indicators of involvement of students in the communication

Student's No	1	2	3	4	5	6	7	8	9	10	11
Ranks of the indicat ors of involvement of studen s in the communicatio	3	5	6	1	4	11	9	2	8	7	10
Ranks of effectiven ss of educational and creativ activity	2	7	8	3	4	6	11	1	10	5	9
D	1	-2	-2	-2	0	5	-2	1	-2	2	1
D^2	1	4	4	4	0	25	4	1	4	4	1

To solve this problem were first ranked the indicators of involvement of students in the communication, received in monitoring practice, and, secondly, the result indicators of effectiveness of educational and creative activity at the end of the year, for the same students on average. The results are presented in Table 1. Sthen we substitute the obtained data in the formula and do the calculations. The levels of significance in this table are found by the number n i.e., by the number of people under test.

And we make the appropriate “axis of significance”: The resulting correlation coefficient coincides with the critical value for the level of significance at 1%. Therefore, we could claim that indicators of involvement

of students in communication and the results are associated with positive correlation relationship, in other words, the higher is the involvement of the student in communication, the higher is the level of education and creative activities. In terms of statistical hypotheses we must reject the null hypothesis of convergence and accept an alternative one of differences, which suggests that the relationship between indicators of involvement in the communication and the average performance of educational and creative activity) is different from zero.

The correlation coefficient is equal to 1, obtained in our research suggests that there is a functional relationship. If changing one factor does not influence the size of the other, there is no connection, i.e., these factors are neutral.

5. Method of Getting the Results

We marked the following indicators of personification of the educational communication at the University.

1) Personal indicator (degree of self-realization of a student's personality). In accordance with the new - personal developing paradigm of education - this indicator focuses on the diagnosis of the degree of selfrealization of the student's individuality. In terms of educational psychology the formal sign of fixing this indicator could be students' verbal intention whether they use phrases like "I think," "I believe" etc. in communication with the teacher, i.e., whether the teacher permits the presence of a second "I" in his class, whether he lets this "I" to be the first but not the second (after the "I" of the teacher). The advanced level of such communication may be seen when the students have the role of not blind performers but real researchers in psychology, pedagogy, methodology etc.). Consequently, creative teacher should be skillful in project, problem and other methods, which allow to organize such activities in the learning environment. The highest level of creative self-realisation of students is when they not only carry out the research (or any other creative) activities, but also have reasonable and interesting ideas and projects that can enrich the modern theory and practice of education. In accordance with these characteristics we can distinguish the following levels for formal use: *the 1st level*. Whether the students use "I think," "I believe" and others in their responses? *The 2nd level*. Do

the students have any plan of creative activity? *The 3rd level*. Do the students suggest their ideas or projects?

2) Empathic indicator (the teacher's ability to take the place of a student and see the world with his eyes). This indicator appeals to the teacher's personality, but not in terms of his personal self-realization, but in terms of the ability to establish personal (psychological) contact, dialogue with the trainees, i.e., whether a teacher can understand his values, see the world with his eyes and experience the feelings of his student. It is important, how skill. Full reflection in the psychological sense arises when a teacher reflects his own ego and a student (with the help and support of the teacher) his own ego. The contact of these egoes creates a special reflexive field — warm climate, emotional enthusiasm, joy and happiness. In accordance with this mindset (the set for creatiing a reflective field) we can distinguish the following levels of demonstration of reflexive factor: the 1-St level. Can the teacher create comfortable conditions for communication? The 2nd level. Does the communication create surprise and emotional rise? The 3rd level. Do the communicators (teacher and students) experience pleasure, joy, happiness during their communication?
3) Cognitive indicator (student's and teacher's values accounting). This indicator is also contrary to the established pedagogic traditions. The matter is that in pedagogy it is generally believed that if a teacher teaches Math, he loves Math and he plants this love for the subject to his students. The practice analysis shows, that the teacher may have different attitudes to the subject: he may love his subject, and he may know it, but not love, he can hate it, but still teach it for all his life, i.e., plant love for the subject in his students. At first glance, it seems that only a loving his subject teacher can plant love for the subject in his students. But practice shows that this argument does not always work: sometimes a scientist (a teacher) who loves Math plants hate for the subject in his students. And sometimes a teacher who is not very profeccional, and doesn't love it much can teach love and keen interest in his students. Why? In these cases the ability of the teacher to organize cognitive forms of activity, i.e., organize the lesson, intrigue, enter the pupils in a situation of “waiting effect of the unexpected” when once the result of joint educational-cognitive activity falls into a trap of memory» of a student and becomes its own domain becomes the most important. Here we face non-standard

forms of organizing a lesson. Formally, this indicator may be expressed in the following levels: The 1st level. Does the teacher speak about their preferences in the subject (grammar, mathematics, physics etc)? The 2nd level. Is the purpose of communication to form positive values among students (in unobtrusive fun way)? The 3rd level. Do the students show their commitment to positive values in the subject?

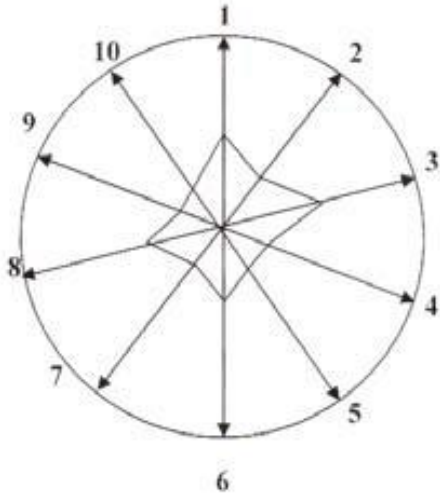

Figure 1. The initial sphere of the teacher's pedagogical skill.

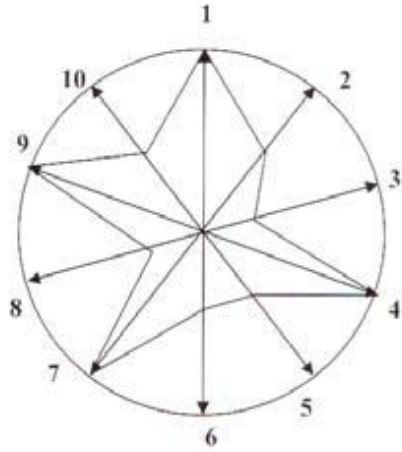

Figure 2. The final sphere of the teacher's pedagogical skill.

The use of these indicators allows to judge the teaching activity of the teacher as art. The distribution of the degree of manifestation of an indicator of the levels can execute specific diagnostic cards for each teacher. If you place these indicators on the radius of the circle and connect the points of their display in class with a continuous line, we'll have a figure that reflects the developmental (creative) field of each teacher individually.

The reliability of the pattern configuration is ensured by the picture overlay and alignment obtained at least by 5-7-lessons conducted in one or two or three days. Map looks like a circle that is intersected by the radiusindicators.

Thus 354 studies were analyzed.

The first figure shows a general version of the field of developmental studies (field of pedagogical skills) - field which is oriented at creating an atmosphere of creativity, in the beginning of the experiment. The second figure shows the average data of the developing field of classes after the experiment. The area of the field increased, which means that training and developing potential increased, creative atmosphere necessary for the self-realization of creative personality of the student increased.

Unexpected results showed the third indicator (reflective) and the 8th one (nature-aligned): in the second picture these indicators were less than in the first. The growth of 8 indicators resulted in a decline of 2, although the total area of developing field (the field of pedagogical skills) was more than 2 times larger than the first. Indicators related to each other, they reveal different aspects of the same phenomenon - pedagogical skills of the teacher. As for these two, they are correlated with the creative self-realization of the student, the teacher's less attention to these indicators can improve the effectiveness of creative self-identity of the student.

Conclusion

Thus, we have found out that indicators of pedagogical skill of the teacher can be 10 indicators: they correlate with leveled hierarchy of creative self-identity of the student.

Consequently, the indicators of the personification of the educational communication at the university include: personal indicator (degree of self-identity of the student); empathic indicator (teacher's ability to take the student's place and see the world with his eyes); reflective indicator (emotional field of the studies, the field of joy, wonder, admiration and happiness);

cognitive indicator (consideration of the individual student and the teacher's values); an interactive indicator (the unity of conscious and subconscious); core indicator (the implementation of the communicative core in communication and learning and cognitive activity); integrative indicator (integration of educational content); nature-align indicator (individual personality development rate); attractive indicator (attractiveness of content and form of classes); resulting indicator (practical orientation of the content of lessons).

Part 3. Integration of Theoretical and Practical Teacher Training

Abstract

The subject matter of this research would be the fact that the traditional methods of integration of theoretical and practical teacher training in modern conditions do not improve the quality of school education; the conditions of transformation of school children's and teachers' personalities, of school and society. Statistical and sociological data analysis shows that transformation of teacher-training education is related to deformation of social conscience, curricula and education programs, content of disciplines and teaching practices. All this has negative effect on the quality of teacher training and the quality of school education. New mechanisms of integration of theoretical and practical teacher training are needed. The matrix of integration problems and integration mechanisms obtained during the study made it possible to formulate recommendations: development of integration mechanisms requires, first and foremost: solve the problems related to the elements of the logical structure of integration (these are the resulting problems): lack of correlation between the basic cooperating discipline (e.g., educational psychology, teaching philosophy, development theory, history of educational thought, methods of teaching the subject), defining the objective of integration and a particular integrative result; develop external integration techniques related to autonomous problems: incompatibility of components of the content with certain forms of educational activity, of methods and means of teaching and development, etc.; with systems unfit for the processes of education transformation.

Keywords: integration mechanisms, pedagogical education, teacher training, theory and practice, university

1. Introduction

Mechanisms of integration of pedagogical education, oriented on improvement of teacher training quality, imply connection (steady correlation) of this education with such spheres as new ideology of development of public relations, new methodology for constructing education in the XXI century, new paradigm for the development of intercultural relations in the world and in each individual (regional) entity, etc. Traditional integration of psychological-pedagogical, methodical training of the future teacher with research, educational, pedagogical and other practice can be considered only on the background of interaction of this education with the mentioned spheres. The complexity of defining the mechanisms is connected with the fact that all these spheres are in the conditions of constant movement, spontaneous (uncontrollable) and controlled transformation.

The transformation of pedagogical education in Russia and the countries of Eastern Europe was influenced by certain historical events. It is known that in 40-ies of the XX century previously established education systems in Eastern European countries (Education in Eastern Europe and the USSR, 2017) were destroyed. These systems mainly based on national traditions. During the Second World War Poland, Bulgaria, Yugoslavia, Albania, Hungary, Romania were occupied by Nazi Germany, and western Ukraine, Estonia, Latvia, Lithuania and part of Finland (Karelia) were included in the USSR. After the end of the Great Patriotic War, with the advent of the socialist camp, the Eastern European countries, or the Warsaw Pact countries, were in the USSR sphere of influence (Krasnozhenova & Kulik, 2017).

Pedagogical education in the universities of the Socialist camp countries was built on the models established in the USSR, but in the Universities of Western Europe – according to the traditional models of Germany, France, England, the USA. Experts note the emergence of new for Eastern European countries factors as ideologization of pedagogical education (in the spirit of socialist and communist ideals), introduction of centralized management, uniformity of curricula and programs (Sokolova, Pylkin, Safanova, & Stroganova, 2017). In pedagogical universities Communist Party organizations, youth politicized organizations similar to Komsomol organization in USSR were created. This increased the confrontation of the West and the East, contributed to formation of a negative image of each other.

2. Problem Statement

In the course of the research conducted in the universities of Russia and countries of Eastern Europe, we analyzed the mechanisms of integration of educational theory and educational practice at different levels: the levels of post-secondary education, general higher pedagogical education, undergraduate, Master's degree, pedagogical postgraduate study. The study of such mechanisms considered the experience of integrating theory and practice at the University of Dublin (Ireland) (Galvin, 2017).

Using the technique of compiling a matrix of significant problems (Prigozhin, 2007) we revealed the problems caused by contradictions between:

- the holistic nature of the "subject of development" - a student (a future teacher) - and a powerful structure disintegrated among themselves methodological and substantive essentials of the processes of development and training which has formed over the last years;
- the process of establishment and development of mechanisms of integration of educational theory and practice as the leading regularity of development of the theory and methods of higher professional education and virtually dominating place of disintegration trends in training and development systems;
- large-scale integrative work in the system of university teacher education and lack of adequate effect of integration on the processes of training a new teacher type, i.e., a teacher of the XXI century;
- urgent need for conceptual validation of mechanisms of educational integration as a leading trend of development of modern theory of professional education and insufficient elaboration of its fundamental positions in the system of professional teacher education.

The principal contradiction is the absence of conceptual model of creation and implementation of mechanisms of integration of educational theory and practice under conditions of transformation of teacher education: the model should become an effective means of development of both integration by itself and the integration of educational theory and practice.

The contradictions between the components of pedagogical integration at different levels should be highlighted:

- at the task level: the source problem, shaped within the framework of either basic or co-operative branch of science, with the problems specific to educational practice;
- at the level of elements of logical structure of integration: basic cooperating discipline (Pedagogical Psychology, Theory of Education, History of Pedagogical Thought, Method of Teaching the Subject), defining an integrative purpose, with a specific integrative result;
- at the level of intrastructural integration: - correlation between different concepts, principles, knowledge, skills, competences, etc.;
- at the level of interstructural integration: knowledge and skills, knowledge and the experience of creative educational activity;
- at the level of external integration: components of the content with certain forms of educational activity, methods and means of training and development, etc.

3. Research Questions

The mechanisms of integration of pedagogical theory and practice in the conditions of transformation of higher education should include the following concepts: components of transformation (trainee and trainer, society and university, knowledge and experience, etc.); components of educational integration (knowledge, theory, content of education, educational disciplines, scientific fields); subject of integration (process of integration, its scale, steps, paths, forms, factors, boundaries); typological characteristics (local, regional, interregional, subject, interdisciplinary, global, specific). This approach is conditioned by research conducted both in Russia and abroad (Chapaev, 1998; Gabdulchakov, Kusainov, & Kalimullin, 2016; Barsukov & Panicheva, 2016; Menter, 2015; Hsu, Hamilton, & Wang, 2015; Barnes & Mattson, 2017). However, new factors have emerged in the twenty-first century.

Recent decades have seen active formation of a negative image of Russia in Western countries. The study, conducted by specialists (Education in the countries of Eastern Europe and the USSR, 2017), shows that a positive image of Russia is typical for the CIS and the third world countries, and, to a lesser extent, for Latin America and the Middle East (though with the countries of the Middle East the image of Russia is much more positive than that of the USA). The negative image of Russia prevails in Western countries (thus, to a

lesser extent in the USA, Canada and Great Britain). The countries of Eastern Europe vary significantly in their opinion (in Bulgaria the image of Russia is still relatively positive and in Poland it is tends to be negative).

According to sociological surveys conducted in Germany in 2007, the overwhelming majority of the Germans (90%) associate Russia, primarily, with vast territories and, secondarily, with the problem of inequality. The main quality, which characterizes the Russian stereotype among the Germans, is the alcohol abuse. Among the positive characteristics of the Russians, German residents have pointed out hospitality, courage, emotional sensitivity and generosity. The results of the study also showed that the positive aspects of the image of Russia in Germany include economic growth, classical art and classical literature. Interesting scientific results were obtained during the Internet survey conducted in 2006 among Russian and Western European student members of the International Association of students studying public relations (Sokolova, Pylkin, & Safanova, 2017). The survey showed that among the students from Russia, Western and Eastern Europe the image of Russia is very strongly associated with corruption and poverty, and this association is especially common with the students from Eastern Europe, which correlates with the fact that the students of Eastern European universities reckon Russia among the third world countries.

Such stereotypes represent the political, social and cultural background of transformation of teacher education in the world, and significantly influence the formation and development of mechanisms of integration of educational theory and practice: curricula and programs undergo changes, some subjects disappear while other emerge, etc.

4. Purpose of the Study

The study is intended to define effective mechanisms of integration of theory and practice in the structure of pedagogical education in Russia and Eastern Europe.

5. Research Methods

The methodology of the study was based on the concept of core competence by Hamel and Prahalad (2014), related to the development of management strategies based on a matrix of significant problems. Such methods as

sociological survey, questionnaires, methods of comparison and generalization were used in the study. The basis for the survey was the method suggested by Prigozhin (2007). Following the method, a list of problems of creation and implementation of mechanisms of integration of teacher education was compiled. The experts (Russian and foreign specialists involved in teacher education) deleted from the list those problems which they considered as insignificant or repetitive, then consolidated the problems as necessary and singled out the most important problems from the resulting revised list. After filling the "empty chart" using the paired-comparison method, the main problems of creation and implementation of mechanisms of integration of teacher education were determined. Spearman's rank correlation coefficient (Gmurman, 2004) was used in the study. It allowed establishing the relationship between the professional competencies of future teachers and the degree of integration of theoretical and practical preparation, i.e., the degree of implementation of mechanisms of integration at the undergraduate, magistracy, and postgraduate level.

Thus, the correlation, i.e., the statistical interrelationship of several quantities (quantitative indicators of the most common problems) was established, which can be considered as root, key, resultant, autonomous (according to Prigozhin, 2007) with a permissible accuracy. Here, a change in the values of one or more of these quantities results in systematic change in the values of one or more of other quantities.

6. Findings

At present both in Russia and in the countries of Eastern Europe the mechanisms of organizational and administrative character are predominantly functioning. They are different in content, but directly or indirectly activate the emergence and development of mechanisms of integration of educational theory and practice. In 2014-2018 we conducted a study in 7 universities of Russia, Belarus, Poland, Moldova.

By now, two subsystems have formed in the Russian system of higher education: One is of mass higher education, the other is of qualitative (fundamental) professional education. These subsystems have different influence on the development of mechanisms of theory and practice integration: there are different curricula, programs and different goal sets in the universities.

The results of the study were obtained as follows. First in the "heading" and in the "footnote on the right" we inserted the number of the problem, recognized as the most important, then we compared pairwise each problem of horizontal line with each of the vertical one (by the criterion of interinfluence). In other words, comparing each couple of problems, we answered the following questions: which of these two strains or causes the other more? Solving which of the problems will relieve the severeness, make it easier to solve another one?

If a problem from a vertical line causes or aggravates a problem from a horizontal line, then in the cell of their intersection we put an arrow horizontally from left to right and up. And if the relation is inverse, then the arrow is inverted. In case when there is no connection between two problems, we put zero (0). If any of the problems in the list disappeared, we added them without entering the "special empty graph."

Processing the obtained date by experts and consultants allowed to make graphs, reflecting the opinion of each of the experts about the most important problems of technological organization of pedagogical education in a particular university.

After processing of "special empty graphs" filled by each expert, there were four types of problems:

1) root – causing or straining other problems;
2) key– depending on some problems, but at the same time causing or straining other problems;
3) resultant– being result of other problems;
4) autonomous – quite significant, but not related to others (see Table 1).

With the "+" we marked the problems that were strongly pronounced in 2013-2017, with the "–" sign – the problems that exist, but cannot be identified as root, key, resultant, or autonomous. The "+"sign means more positive in the solution of the problem, the "–" sign means domination of negative in the solution of the problem (see Table 1).

Finally, a matrix of problems was made, on the basis of which it was concluded that the mechanism of integration of pedagogical theory and pedagogical practice in the system of university pedagogical education is, in fact, the process and result of development of multidimensional entity of a future teacher in the conditions of integrative-pedagogical activity (see Table 1).

Table 1. Typical problems associated with

Types of problems	Typical problems associated with
Root	The holistic nature of the "subject of development" - the student (the future teacher) - and a powerful structure disintegrated among themselves methodological and substantive essentials of the processes of development and training which has formed over the last years
	The process of establishment and development of mechanisms of integration of educational theory and practice as the leading regularity of development of the theory and methods of higher professional education, virtually dominated by disintegration trends in training and development systems
	A large-scale integrative work in the system of university teacher education and lack of adequate effect of integration on the processes of training of a new teacher type, i.e. A teacher of the XXI century
	The process and the result of establishment, formation and development of multivariate integrity of the future teacher and inadequate conditions of integrative-educational activity
Key	The urgent need for conceptual validation of mechanisms of educational integration as a leading trend of development of modern theory of vocational education and insufficient elaboration of its fundamental positions in the system of professional teacher education
	The absence of conceptual model of creation and implementation of mechanisms of integration of educational theory and practice under conditions of transformation of teacher education: the model should become an effective means of development of both integration by itself and the integration of educational theory and practice
	The problems of correlation of the initial problem, shaped within the framework of either the basic or co-operative branch of science, with the problems specific to educational practice
Resulting	The elements of the logical structure of integration: lack of correlation between the basic cooperating discipline (e.g. Educational psychology, teaching philosophy, development theory, history of educational thought, methods of teaching the subject), defining the objective of integration and a particular integrative result
	The intrastructural integration: lack of correlation between various concepts, principles, knowledge, skills, competences, etc.
	The interstructural integration: lack of correlation between knowledge and skills, knowledge with the experience of creative educational activity
Autonomous	The external integration: incompatibility of components of the content with certain forms of educational activity, of methods and means of training and development, etc.
	The optimization of curricula: increased requirements to the professional competence of the future teacher (under the new Federal State Educational Standard) and reduction of hours in the curricula, which impede full integration of theory and practice
	Non-conforming with the processes of training transformation, systems of: 1) development as a process of progressive change of intellectual, spiritual, moral, cultural qualities of the future teacher; 2) establishment as a form of emergence new intellectual, spiritual, moral, cultural qualities of the future teacher; 3) formation as a technology of enrichment of the personality of the future teacher with new intellectual, spiritual, moral, cultural qualities

In this respect, development is a process of gradual change of intellectual, spiritual, moral, cultural qualities of the future teacher; establishment is the emergence of new intellectual, spiritual, moral, cultural qualities of the future teacher; formation is the enrichment of the personality of the future teacher

with new intellectual, spiritual, moral, cultural qualities (Khairullin, Nigmatov, & Baubekova, 2016).

Thus, the most important mechanisms for the integration of theory and practice include:

- the design of methodological and content fundamentals of development and training processes;
- formulation of the source problem, shaped within the framework of either the basic or co-operative branch of science, with the problems specific to educational practice;
- establishment and formation of multivariate integrity of the future teacher under the conditions of integrative-educational activity;
- correlation of the basic cooperating discipline (e.g., educational psychology, teaching philosophy, development theory, history of educational thought, methods of teaching the subject), defining the objective of integration with a particular integrative result;
- correlation between various concepts, principles, knowledge, skills, competences, etc.;
- correlation of knowledge with skills, knowledge with experience of creative educational activity;
- correlation of content components (curricula, programs, teaching materials) with some forms of educational activity, methods with means of teaching and development, etc.

Conclusion

The study shows that the root problems of integration of the theory and practice include those related to the holistic nature of the "subject of development" of the student (the future teacher) and disintegrated among themselves methodological and substantive essentials of the processes of development and training which has formed over the last years; to the process of formation and development of mechanisms of integration of educational theory and practice as the leading regularity of development of the theory and methods of higher professional education and virtually dominated by disintegration trends in training and development systems; to the large-scale integrative work in the system of university teacher education and lack of adequate effect of integration on the processes of training of a new teacher

type, i.e., a teacher of the XXI century; to the process and the result of establishment, formation and development of multivariate integrity of the future teacher and inadequate conditions of integrative-educational activity (Meyer, 2008).

The key problems are the contradictions related to the urgent need for conceptual validation of mechanisms of educational integration as a leading trend of development of modern theory of vocational education and insufficient elaboration of its fundamental positions in the system of professional teacher education; to the absence of conceptual model of creation and implementation of mechanisms of integration of educational theory and practice under conditions of transformation of teacher education: the model should be an effective tool for the development of both integration and the integration of pedagogical theory and practice; to the problems of correlation of the initial problem, shaped within the framework of either the basic or co-operative branch of science, with the problems specific to educational practice.

The matrix obtained during the study, demonstrates (see Table 1) that the development of mechanisms of integration of theory and practice necessitates, primarily:

- the solution of the problems related to the elements of the logical structure of integration (these are the resulting problems): lack of correlation of the basic cooperating discipline (e.g., educational psychology, teaching philosophy, development theory, history of educational thought, methods of teaching the subject), defining the objective of integration with a particular integrative result; with intrastructural integration: lack of correlation between various concepts, principles, knowledge, skills, competences, etc.; with interstructural integration: lack of correlation between knowledge and skills, knowledge with the experience of creative educational activity, etc.;
- the development of external integration techniques related to autonomous problems: incompatibility of components of the content with certain forms of educational activity, of methods and means of training and development, etc.; with non-conforming with the processes of training transformation, systems of:
  1) development as a process of gradual change of intellectual, spiritual, moral, cultural qualities of the future teacher;
  2) establishment as a form of the emergence of new intellectual, spiritual, moral, cultural qualities of the future teacher;

3) formation as a technology of the enrichment of the personality of the future teacher with new intellectual, spiritual, moral, cultural qualities.

Part 4. Professional Culture, Pedagogical Skills of Kindergarten Teacher: Indicators and Procedures of Diagnosis

Abstract

The present article questions indicators to diagnose level of professional culture and pedagogical skills of the kindergarten teacher: self-realization, empathy, reflexivity, cognition, communicative kernel, nature conformity, attractiveness, effectiveness. Indicators, technological procedures of their diagnosis and processing allow to diagnose objectively the level of development of professional culture and skills of kindergarten teachers, to trace dynamics and regularity of development and self-development of pedagogical skills of tutors, to influence the quality of preschool education in a positive way. The harmony violation principle between the 'cognizable' and 'non-cognizable' spheres of activity can lead not only to the educational process degradation but can also destroy pupils' personality. This indicator contradicts with the traditions which settled in pedagogics as by default, it is accepted that if a teacher forms mathematical knacks in children, it means that the teacher himself has loves of mathematics (this constitutes the teacher's estimation towards the subject) and, naturally, translates his love to pupils. The various tenures analysis shows that teacher is a human too and he/she can treat different areas of the pedagogical activity differently: he can well know a certain area of knowledge but absolutely dislike it while trying to instill love of this area of knowledge into pupils.

Keywords: indicators, kindergarten teachers, professional culture, pedagogical skills, technological procedures

1. Introduction

Awareness of professional culture of a teacher (by children, parents, colleagues) starts with kindergarten. Therefore, speaking about drivers of its development and creative technologies, it is necessary to consider experience of realization of this culture in communication with children of preschool age.

The problem of teacher's professional and pedagogical culture formation was developed in research works of many scientists (Azarov, 1971; Bakhtin, 1979; Bondarevskaya, 2000; Gabdulkhakov & Popov, 2013; Grekhnev, 1990; Soil & Lymar, 2007; Isaev & Makarova, 2002; Kodzhaspirova, 2004; Makarova & Sharshov, 2011; Slastenin, Isaev, Mishchenko, & Shiyanov, 2004; Shchurkova, 1993; Yakusheva, 2009, Almazova, Khalyapina, & Popova, 2017; Razinkina et al., 2018).

Modern researchers (Kodzhaspirova, 2004; Makarova & Sharshov, 2011; Slastenin, Isaev, Mishchenko, & Shiyanov, 2004) define essence teacher's professional culture; mark out criteria of formation of professional skills and professional culture of a teacher; study an innovative guiding lines in the formation of teacher's professional culture; consider questions of ensuring theoretical, psychological, methodical support of tutors, creating conditions to make progress in professional competence, pedagogical skills and in developing creative potential of every teacher.

The essence of the pedagogical skills constitutes teacher's personal qualities who, carrying out this work, provides success (Shchurkova, 1993; Yakusheva, 2009). Pedagogical skills – the high and constantly improved art of training and education available to any teacher working according to his/her vocational aptitude (Bondarevskaya, 2000; Gabdulkhakov & Popov, 2013; Grekhnev, 1990; Soil & Lymar, 2007). However, problems of the kindergarten teacher's professional culture and pedagogical skills are still poorly studied.

2. Problem Statement

The teacher's professional and pedagogical culture is considered to be the integrated quality of the personality presented by unity of the valuable, cognitive, innovative and technological, personal and creative components providing productive pedagogical activity and creative self-realization of a preschool educational institution teacher. The pedagogical skill is the ultimate stage in pedagogical activity (Kodzhaspirova, 2004). Characterizing pedagogical skills, researchers note that the master-teacher is a deep expert on psychology of the personality and what should teach it; this is the person who is in command of ways how to train, develop and educate.

Thus, the professional pedagogical culture is inseparable from pedagogical skills. From there stems a research problem: to define indicators of the preschool teacher's pedagogical skills and technology of their use in practice.

3. Research Questions

To define indicators of professional pedagogical skills of the kindergarten teachers, it was necessary to define:

1) representative group of kindergartens and teachers concordant to participate in an experiment;
2) to organize visiting teachers' model studies by experts;
3) to develop technological procedures of observation and measurement of indicators for pedagogical skills.

4. Purpose of the Study

To develop a set of technological procedures to diagnose the level of pedagogical skills of the kindergarten teacher defining the directions of development and self-development of teachers of preschool institutions in the field of professional pedagogical culture.

5. Research Methods

In a research such methods as questioning, the analysis and comparison, a method of induction and deduction, generalization methods, results of training were used. The methodology of the research is formed on the concept of dialogue of Bakhtin in which communication levels (a personal position, trust, consent, understanding of sense, etc.) are allocated (Bakhtin, 1979).

6. Findings

The indicative research was conducted by us earlier while studying the efficiency of 'teacher - student' interaction at Russian universities of (Gabdulhakov, 2014; Gabdulchakov & Shishova, 2017). The new research was conducted by us in kindergartens No. 25, 387, 149, 67, 143, 21, 69, 74, 231, 232, 87 of Kazan during 2012-2018. The total of examinees of teachers made 357 people.

As a result of the approbation (2012-2018) of various technological diagnosis procedures into levels of professional culture and pedagogical skills, indicators of the kindergarten teachers' quality of work assessment were defined.

6.1. Child's Personal Self-Realization Indicator

According to a new personality-oriented developing education paradigm this indicator is focused on diagnosis of the extent of self-realization of child's identity, his/her aptness to originality. From the point of view of pedagogical psychology, speech intensions of pupils can be a formal sign of fixing of this indicator: whether they speak in communication with the teacher *I think, I consider* etc. that is, whether the teacher admits the presence of a second "I" during the class, whether he allows this "I" to become the first "I," not the second (after the teacher's "I").

Advanced level of such communication can be expressed by pupils whose role activity is not a mere reproducing, but real researchers (for example, in the sphere of experimenting with water, sand or puzzles).

Therefore, the creative teacher has to own the design, problem and other methods allowing to organize such activity in the educational developing environment.

The highest level of creative self-realization of pupils is observed when they not only safely carry out research (experimental) activity, but also put forward the reasonable and interesting ideas and projects capable of enriching children's ideas of the world around.

According to these characteristics, to best process the classes given by tutors, the technological procedure embracing three levels of the child self-realization expressiveness was developed:

1) prefers to execute tutor's instructions, orders;
2) seeks to insert "oneself" in the process of task fulfillment;
3) likes to accomplish any tasks always "in their own way," makes original offers on fulfillment upto creation of the project.

Affirmative answer on the first question denotes 33%, on the second – 66%, on the third – 99-100%.

On the average, the range of the personal self-realization indicator in 2015 alone appeared to be at the level of 34% (see Table 1).

6.1.1. Empathy Indicator

This indicator appeals to the teacher's identity, but not from the point of view of his/her personal selfrealization but from the point of view of ability to come into personal (psychological) contact, dialogue with a child (whether a teacher is capable of understanding values, to see the world with his eyes and to experience those feelings which are experienced by his/her pupils). At the same time, though, it is important how a teacher addresses the pupils whether he/she calls them by names (and as he/she utters these names – with respect, friendly, with irony, with a humorous undertone, with admiration etc.) or addresses by surnames or maybe uses the depersonalized communication forms (*hey you* or *listen, boy, girl*).

From all of these depend how children anticipate the teacher: a person of identity, or a supervisor of identity, identity of the decent, intelligent person or schemer, adventurer, fool, envious person, unfortunate person, villain or someone else. It is important for us how a tutor expresses him/herself from the point of view of his/her human qualities.

According to these characteristics, to best process the classes given by tutors, the technological procedure embracing three-fold child's empathy was developed:

1) whether tutor's appearance and voice are subject to confidential contact;
2) whether tutor's addressing to children uses personal forms of communication (whether he calls them by names);
3) whether a tutor opens up to pupils as a person.

On the average, the range of this indicator in 2015 appeared to be at the level of 57% (see Table 1).

6.1.2. Reflexive Indicator

This indicator describes the emotional field of study, the field of joy, surprise, admiration and happiness. It is one of the most problem indicators as the traditional stereotype of the Russian teacher is a stereotype of the poor, humiliated and unfortunate person. Besides, the thought that in Russia to be happy indecency was fixed in subconsciousness of the majority and in general it is impossible. It is also traditionally connected with the national ethno-cultural type of the unfortunate person created in the Russian culture by Griboyedov's ("Woe from Wit") works, Nekrasov's "Who is happy in Russia," Lermontov's "Hero of our time," Pushkin's "Eugene Onegin," etc. Therefore,

teacher's ability to create comfortable conditions for communication during the studies, to add a surprising emotional background to this communication and furthermore pleasures, bliss, admiration, happiness is a stable indicator of his/her professional skills "memory trap" and becomes his own property. Here non-standard forms of the organization of studies are urgent (Grekhnev, 1990).

According to these characteristics, to best process the classes given by tutors, a technological procedure embracing three levels of expressiveness of a cognitive indicator was developed:

1) whether the teacher speaks about the valuable preferences in the subject sphere (grammar, literature, mathematics etc.);
2) whether communication with the teacher is directed to formation of positive values at children (in an unostentatious fascinating form);
3) whether children show the commitment to positive values in the subject sphere.

On the average, the range of this indicator in 2015 appeared to be at the level of 54% (see Table 1).

6.1.3. Indicator of a Communicative Kernel

This indicator characterizes predisposition to personal self-development. If consider educational activity according to the standard scheme "motive-the analysis-synthesis-the interiorization," then the last phase (the translation of internal actions in external, or speaking and speech control) constitutes great problem. The matter is that traditional student teaching does not consider the mechanism of speech control, though it is long established that nearly 80% of mistakes of children can be qualified not as traditional (actual or speech) and as errors of speech control (the mistake which arose for fear to make a mistake). The paradox is that the teacher 'guards' speech control and does not understand that thereby he/she promotes involuntarily turning off mechanisms not only speech production, but also productive cogitative and intellectual activity. To decrease (or neutralize) actions of speech control, a mechanism of a communicative kernel was used – the organization of a hot discussion when a child forgets about control and speaks own words.

Here the thesis that a child has the right for a mistake too, is urgent: only the one who does nothing does no mistakes. Therefore, the meaning of a communicative kernel (as central communicative situation of study) is in neutralizing the action of speech control as much as possible.

Experiments show that at the correct realization of a communicative kernel (when a pupil is not corrected, nobody prevents him from speaking or interrupts) the powerful impulse is given to development of intelligence, thinking, the speech, formation of morality and other personal qualities.

According to these characteristics, to best process the classes given by tutors, a technological procedure embracing three levels of expressiveness of a communicative kernel was developed (Esthetics of verbal creativity, 1979):

1) whether the pupil participates in a dispute, a discussion;
2) whether the child in the statements uses speech stamps of the tutor;
3) whether the child shows independence whether he speaks by the own words.

On the average, the range of this indicator in 2015 appeared to be at the level of 43% (see Table 1).

6.1.4. Nature-Oriented State Indicator

This indicator, being connected to registering individual speed in development of the personality, has always drawn interest of psychologists and teachers. It involves the elaboration of different plans of personalized education, multi-level education. However, the main problem remains unsolved. Standard programs (whatever developing they may be) after all are targeted toward the average pupil: there are children not keeping up with this program, others lag behind its rates, the third could pace quicker with it, but the program constrains. Therefore, a lot of things depend on the teacher: how he/she works – frontally (for all) or individually, differentially.

According to these characteristics, to best process the classes given by tutors, a technological procedure embracing three levels of expressiveness of nature conformity was developed:

1) whether there are at study individual forms of work;
2) whether are differentiated on task study depending on the level of educational opportunities of children;
3) whether the children who are lagging behind in development work at study (along with very developed children).

On the average, the range of this indicator in 2015 appeared to be at the level of 75% (see Table 1).

6.1.5. Attractive Indicator

This indicator reflects appeal of contents and a form of study.

It can be presented by such indicators as:

1) whether the room from the point of view of registration and favorable conditions is attractive to communication;
2) whether the study form is interesting;
3) whether the identity of the tutor (the speech, a communication manner etc.) is attractive.

On the average, the range of this indicator in 2015 appeared to be at the level of 68% (see Table 1).

6.1.6. Productive Indicator

By this a practical orientation of content toward study is implied.

Distribution of indicators by three levels can be presented so:

1) whether study is connected with everyday life of children;
2) whether there is an orientation on training of children for school;
3) whether is present at study social, profile or any other orientation, necessary for future life of children.

On the average, the range of this indicator in 2015 appeared to be at the level of 22% (see Table 1).

According to these indicators, first the table, then the map reflecting extent of manifestation of indicators – the level of professional culture and pedagogical skills of a tutor is filled in (see Table 1).

The card constitutes a circle divided by radiuses. Each radius – the indicator which extent of manifestation is determined by length. Total length of radius – 100%. Respectively, the tutor showing according to the expert, a self-realization indicator range at 50%, receives a half of radius on the diagnostic card. Then the fixed ends of all radiuses connect the general line. It results in the drawing, which area reflects the developing field of study or the level of tutor's professional skills.

Selection of seven studies (seven drawings) is usually representative for each tutor. Each tutor has an individual drawing allowing to take a detached, critical view of oneself and plan the directions to selfimprove.

The work of the senior tutor (as the tutor-consultant, the tutor-methodologist or the psychologist) at indicators of pedagogical skills allows

to increase not only quality of the study, but also quality of all work of preschool institution. As a result, in four years (from 2015 to 2018) indicators gained positive dynamics.

Table 1. Extent of manifestation of indicators of professional skills of kindergarten teachers in dynamics

№	Indicators of professional skills (in %)	2015	2016	2017	2018
1.	Indicator of personal self-realization of the child	34	45	55	67
2.	Empathy indicator	57	67	69	75
3.	Reflexivity indicator	64	74	80	85
4.	Cognition indicator	54	62	70	75
5.	Indicator of a communicative kernel	43	53	61	68
6.	Nature-orientation indicator	75	82	87	92
7.	Attractivity indicator	68	75	80	87
8.	Productivity indicator	22	35	42	58

The map of 2015 is submitted in figure 1. In this card indicators are expressed by arithmetic averages in figures (in %) on the basis of the analysis of 357 cards. The final map for 2018 is submitted in the figure 1 too. In it indicators are expressed by arithmetic averages in figures (in %) on the basis of the analysis of 357 cards.

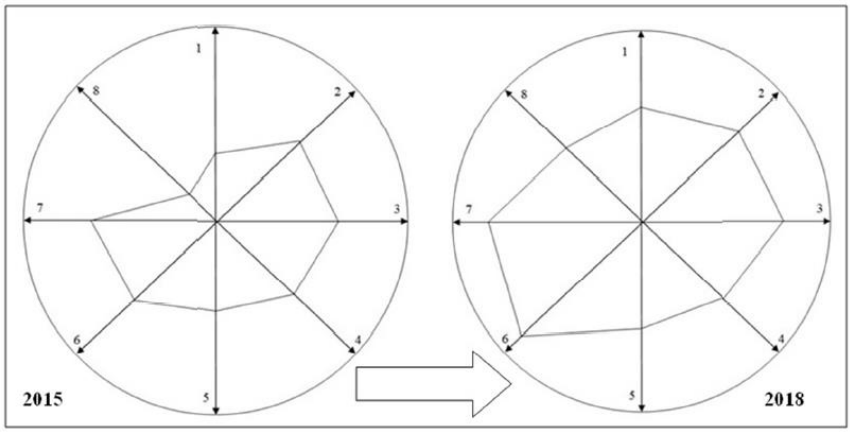

Figure 1. Diagnostic cards of professional skills in 2015 and 2018.

All indicators significantly increased: personal self-realization (from 34 to 67%), empathic (from 57 to 75%), reflexive (from 64 to 85%), cognitive (from 54 to 75%), a communicative kernel (from 43 to 68%), nature-oriented

(from 75 to 92%), attractive (from 68 to 87%), productive (from 22 to 58%). The card configuration underwent changes significantly too.

The purpose of interaction between a senior tutor (as a methodologist) with the tutor is that the latter knows why the expert comes to him/her, and fills in the map as well (pertaining to his/her study), takes part in discussion of this study, projects an individual route of professional development.

6.1.7. Summary

Experiments of 2012 - 2018 show that the drawing made by an expert and those by a tutor differ significantly. The tutor giving classes often does not see what an expert can see. Lev Nikolaevich Tolstoy in this regard said that it seems to a teacher as if the best method is the one that is pleasant to him (Blaisdell, 2000). Actually, the best is the method which is pleasant not to a teacher, but to a pupil. The senior tutor dealing with problems of professional culture and pedagogical skills with the colleagues – kindergarten teachers - can see such method.

Conclusion

The indicators allocated during the research (self-realization, empathy, reflexivity, cognition, communicative kernel, nature conformity, attractivity, effectiveness) are the main, but subject to replenishing. Today the allocated indicators, technological procedures of their diagnosis and processing allow to diagnose the level of professional culture and skills development of kindergarten teachers rather objectively, to trace dynamics and regularity of development and self-development of the tutor pedagogical skills to influence positively the quality of preschool education.

Part 5. Technological Development of Teacher-Training System under the Conditions of the Transformation of Higher Education

Abstract

The problem of the research is determined by the conditions of the transformation of higher education in the first decades of the XXI (in

many post-Soviet countries (Russia, Ukraine, Belarus, etc.) century when following the transformation of the economy, society, culture, etc. in many countries, the traditional teacher-training systems are being destroyed, the quality of training is decreasing, undermining the prestige of the teaching profession and causing a drop in the quality of school education. In this regards, state and public management institutions tend to recognize the need to develop such technologies for the organization of teacher-training education that develop state-of-the-art mechanisms for increasing its effectiveness. The research, conducted in 2013-2017, involved 12 universities: Kazan Federal University (Russia), Moscow State University (Russia), Southern Federal University (Russia), Baltic Federal University (Russia), Pereyaslav-Khmelnytsky State Teacher-training University (Ukraine); Brest State University (Belarus), State Higher School named after Pope John Paul II (Byala Podlaska (Poland), Opole University (Poland); Oxford University (England), University of Glasgow (Scotland), University of Dublin (Ireland), University of Texas (USA).

Keywords: technology, system, training of teachers, transformation of higher education, universities

1. Introduction

Contemporary teacher education in universities is perceived ambiguously: in some universities this education accompanies the student's major (mathematics, IT, engineering, medicine, law, etc.), in others it is included in the list of disciplines that determine the specialization of the course (pedagogical, psychological, socio-pedagogical, and etc.). However, speaking about the problems of improving its effectiveness, it is often said that it is necessary to develop new mechanisms and technologies for educating teachers under the conditions of transforming higher education (Arsenyev, Shkodyrev, Yarotsky, 2012; Prokhorova, 2015; Sakharova, 2012; Lyubimova, Galimullina, Ibatullin, 2015; Menter, 2015; Gould, Holmes, Fantie, Luckenbaugh, Pine, Burgess, Manji, Zarate, 2008). Traditional technologies for teacher-training do not correspond to the new conditions (economic, information, communication, ethnocultural, migration, etc.) of the development of higher education, the development of society, the personality of the teacher and the personality of the student.

1.1. Literature Review

Research shows that researchers identify three interrelated mechanisms that require rapid development: 1) mechanisms for networking between educational organizations of various levels and specialization; 2) mechanisms for stimulating the innovative activity of researchers and teaching staff; 3) mechanisms for activating the research and development activities of under- and post-graduate students (Davydova, 2010; Prokhorova, 2015; Sakharova, 2012; Barnes, Mattson, 2017; Shaw, 2013; Weber, 2014; Root-Bernstein, 2015). At the same time, other mechanisms are widely discussed at international conferences and forums (Soderqvist, 2007; Valerian F. Gabdulchakov, Evgeniya O. Shishova, 2017; Gabdulchakov, Khairullin, 2018).

For example, the mechanisms of economic incentives, internationalization of higher education, etc., are considered to be the most important for improving the effectiveness ofteacher education. The mechanisms of economic incentives in higher educational institutions offering psychological and pedagogical majors can come in the form of the fees for high results in the rating indicators: publications indexed in Scopus and WoS; stimulation of advancement in research and career development of students (pedagogical college, bachelor's degree, master's degree, postgraduate study).

Mechanisms of internationalization of the universities are to be discussed separately. Internationalization of a university is understood as the process of transforming a regional (or federal) institution into an international one, which leads to the inclusion of an international aspect in all components of the integrated management of the university in order to improve the quality of teaching, research, and the acquisition of the required competences (Soderqvist, 2007).

To develop the worthy teacher education in Russian universities, it is necessary to improve the mechanisms aimed at taking into account the multicultural features of the country, the organizational and pedagogical conditions of working with the local school populations, and a variety of models of psychological and pedagogical education that are determined by these conditions.

Solving the problems of multicultural education cannot be limited to general issues of national culture, literature (tales, myths, legends, plots, motifs, morals of different peoples), it is necessary to actively use the resources of the language – the resources of linguodidactics and the associated phenomena of linguistic interference: positive and negative language transfer

(Gabdulkhakov, Khisamova, 2012; Birman, 1994; Menter, 2014; Khairullin, Bimakhanov, Murzabekov, 2017).

It is this linguodidactic approach that became the conceptual basis for multicultural teacher-training at the Kazan Federal University. This approach is based on taking into account the language preferences of students and the construction of special linguodidactical technologies aimed at the building future teacher's linguistic and later multicultural competences.

While implementing the new educational modules, in collaboration with D. Birman and I. Menter, researchers from the US and Great Britain, it was established that in Russia it is better to develop a polycultural rather than multicultural education system.

Multicultural education, despite the wooded pronouncements on the right of every people for their language and culture, contextually still suppresses the native language of immigrants, assimilates people to the cultural values of the host country. Multicultural education, traditional for the USSR and the Russian Federation, always assumed and assumes the equality of languages and cultures of all peoples.

In the classical universities of Russia there are two main technologies for teacher education: 1) Education as a major at the level of either Bachelor or Master degree course; 2) Education as an additional (Kasprzhak, 2016, Margolis, 2014). In this regard, many researchers (Berezhnaya, 2014, Liu Nan, 2016) note that pedagogical universities must be gradually transformed either into large basic centers for the training of teachers, or to the faculties of classical universities.

Kazan Federal University (KFU) implements programs of all levels of pedagogical education: Bachelor, Master degree courses, postgraduate programs as well as programs for additional professional education. In KFU there is a system of continuous teacher education and teacher development throughout his professional life (Kalimullin, 2014).

The coordinator of psychological and pedagogical training in the corresponding institutes of KFU is the Institute of Psychology and Education (the former department of psychological and pedagogical education).

At present, the integrative technology of training is being introduced in the KFU, when, on the basis of flexible curricula, the university provides the opportunity for bachelors of classical training courses (physics, chemistry, biology, etc.) to specialize in Education after the first or second year of the Bacherlor degree course.

Another technology of acquiring the teaching profession, which is gaining popularity among students, is a comprehensive one, involving various programs of professional retraining, which was widely supported by participants of the Second International Forum on Teacher Education, organized by the Institute of Psychology and Education of the KFU in 2016 (The II International Forum on Teacher Education Agenda, 2016).

Thus, literature review and the current practice show that at present, technological development of teacher-training system at university is viewed from different angles. There is a need for an objective analysis of these approaches, systematization of the identified problems in a special matrix.

1.2. Problem Statement

The problem of creating a functional mechanism that allows to quickly update not only the curriculum content, but also educational technologies, has become increasingly relevant in recent years. The quality of education, the quality of training, and the ranking of universities depend on the timely updating of technologies.

2. Materials and Methods of Research

The methodological foundation of the research is Menter's concept of interdependence of pedagogical competences and learning outcomes. Ian Menter studies relation and interdependence between competences and educational outcomes, and also emphasises the technological nature of their relation (Menter, 2014). The study used methods such as questionnaires, analysis and comparison, the method of induction and deduction, methods of generalization. The methodological basis of the study was the method of AI Prigozhin (Prigozhin, 1995). By this method we have compiled a list of the problems of the technological organization of teacher education. The experts (Russian and foreign specialists who organized the teacher education) had to delete from it those that they seem to be insignificant or repetitive, then combine the problems, when necessary, from the obtained transformed list the most important ones. After filling in the "blanks" using the method of paired comparisons, the main problems of the technological organization of teacher education were determined.

3. Result

The results of the study were obtained applying the following technique. First, we included in the "heading" and in the "footnote on the right" the numbers of the problem recognized as the most important, then we matched each problem of the horizontal row with each vertical one (by the criterion of mutual influence). In other words, comparing each pair of problems, we answered the questions: which of the two intensifies or causes the other? Solution of which of the problems will make it easier to solve the others?

If the problem from the vertical row causes, aggravates the problem from the horizontal, then in the bow when the cross we put the arrow horizontally from left to right and upwards.

If the relationship is reversed, then the arrow is placed on the contrary. In the case where there is no connection between the two problems, we set zero (0). If any problems on the list have disappeared, we have appended them, without introducing them into a "special blank box."

The processing of the received material by experts and consultants allowed the construction of graphs reflecting the representation of each of them about the most important problems of the technological organization of teacher education in a particular university.

As the result of processing "special blank graphs" filled in by each of the experts, four types of challenges emerged: 1) root - causing or intensifying other challenges; 2) nodal - dependent on some challenges, but simultaneously causing or intensifying others; 3) resulting - resulting from other problems; 4) autonomous - quite significant, but not related to others.

The research, conducted in 2013-2017, involved 12 universities: Kazan Federal University (Russia), Moscow State University (Russia), Southern Federal University (Russia), Baltic Federal University (Russia), Pereyaslav-Khmelnytsky State Teacher-training University (Ukraine); Brest State University (Belarus), State Higher School named after Pope John Paul II (Byala Podlaska (Poland), Opole University (Poland); Oxford University (England), University of Glasgow (Scotland), University of Dublin (Ireland), University of Texas (USA). (see Table 1). The sign "+" marks those problems, which for 2013-2017 appeared to be most pronounced, the sign "-" - those problems that exist, but cannot be designated as root, nodal, resultant, or autonomous.

The sign "+" means a more positive trend in solving the problem, the sign "-" means the predominance of the negative trend in resolving the problem.

In accordance with the numbering on this matrix, the universities are allocated:

- Russian Federation: 1 - Kazan Federal University, 2 - Moscow State University, 3 - Southern Federal University, 4 - Baltic Federal University;
- Eastern Europe: 5 - Pereyaslav-Khmelnytsky State Teacher-training University, Ukraine; 6 - Brest State University, Belarus, 7 - State Higher School named after Pope John Paul II, Byala Podlaska, Poland, 8 - Opole University, Opole, Poland;
- Western Europe: 9 - Oxford University, England, 10 - University of Glasgow, Scotland, 11 - University of Dublin, Ireland,
- North America: 12 - University of Texas, El Paso, USA.

As we see from the matrix (see Table 1), the university partnership model with educational institutions – different links in the system of continuous teacher education - is of particular concern: at the universities of Western Europe and Moscow State University it is not as high as in Kazan and Southern Federal Universities.

But the availability of invariant components (university lyceums, gymnasiums, centers, etc.) in various parts of the continuous teacher education has always been quite high.

The inadequacy of the mechanisms (algorithms, technologies) for the implementation of continuity between comprehensive school (gymnasium, lyceum) and the classical university proved to be characteristic of the Russian universities: this problem at the level of standards and programs in Russia is declared as a nodal one, and at the level of educational practice it is still not solved or requires more attention.

Development (lack) of regulatory and legal framework justification of technologies for transforming the social status of the future teacher as a teacher of the XXI century (mobile, communicative, reflexive, broad-minded, creative) is declared in all countries - in Russia and in Eastern and Western Europe, in these areas while weak. These problems are related to the problems of the resulting type.

Strong progress in all universities (both in the West and in Russia) is observed in creating the necessary conditions for the organization of in-service training of the university teaching staff, student groups in the modern information and gameoriented environment.

The inadequacy of polycultural (multicultural) content to train teachers for working with migrants or with a diverse ethnic/ national school populations is more typical for Russian universities: in recent years they have focused on the standards of Western Europe (where the number of migrants is growing) and began to lose their traditional links with local (national and regional) educational institutions (and their specific linguistic and national-cultural needs). Universities of Western Europe, pursuing a policy of multiculturalism based on English as a universal agent language for all countries, have strengthened their influence on universities around the world.

In terms of using distance education resources (the availability of online resources, a certain number of users of online resources), universities in Western Europe are traditionally strong: online courses in English can be used anywhere in the world.

Table 1. Most Important Challenges of the Technological Organization of Teachereducation at University Matrix

Type of challenges	Typical problems	Russia				Eastern Europe				Western Europe			USA	Band
		1				*2*				*3*			*4*	
		1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	
Root	Partnership model of univesity and other educational institutions - different links in the system of continuous teacher education.	+	–	+	–	–	+	–	+	–	–	–	+	4 (+) 7 (-)
	Availability (lack) of invariant components (university lyceums, centers, etc.) in various links of continuous teacher education.	+	–	+	–	–	+	–	+	+	+	+	+	8 (+) 4(-)
	Availability (lack) of the system of interaction with employers, mechanisms for studying the labor market and demand for educational services.	–	–	–	–	–	–	–	–	–	–	–	+	1(+) 11(-)
Nodal	Availability (lack) of mechanisms (algorithms, technologies) of economic stimulation of research activity of teaching staff and students.	+	–	–	+	–	+	–	+	+	+	+	+	8 (+) 4 (-)
	Provision for (lack) of continuity in the unity and consistency of the stages of education and upbringing of future teachers in the framework of the classical university.	–	–	–	+	–	–	+	+	+	+	+	–	6 (+) 6 (-)
	Internationalization of education, the opportunities for the training foreign students, the development of academic programs in English, network, distance and other forms of training at the international level.	+	+	–	–	–	+	+	+	+	+	+	+	9(+) 3(-)
Rezulting	Development (lack) of regulatory and legal framework justification of technologies for transforming the social status of the future teacher as a teacher of the XXI century (mobile, communicative, reflexive, broad-minded, creative)	–	–	–	+	–	+	+	+	+	+	+	–	7 (+) 5(-)
	Availability (lack) of provision for the organization and maintaining the system of life-long learning of the university teaching staff and student groups in the modern information and game-oriented environment.	–	–	–	–	–	+	+	+	+	+	+	+	7 (+) 5(-)
	Availability (lack) of provision for the development of mobility the provision for the academic mobility of the faculty the students.	–	–	–	–	–	–	–	+	+	+	+	+	5(+) 7(-)

auto-nomous	Availability (lack) of polycultural (multicultural) content for training teachers to work with migrants (or with diverse school populations).	–	–	–	+	+	+	–	+	+	+	+	+	8 (+) 4 (-)
	Use of distance education resources (online resources), increasing the number of users of university online resources.	–	–	–	+	+	+	+	+	+	+	+	+	9 (+) 3 (-)
	Developing information provisions for educational process with modern information and communication tools.	+	+	–	–	–	–	–	–	+	+	+	+	6(+) 6(-)

Online courses in the Russian language are only gaining popularity. Information provision of the educational process with modern information and communication tools in Eastern Europe is inferior to the situation in Western Europe and the United States. Thus, the technological development of teacher education in universities should be aimed at meeting the following challenges:

- root challenges: the development of university partnership model with educational organizations - different links in the system of continuous teachereducation; the formation of integrated components (university lyceums, centers, etc.) in various links of continuous teacher education, the formation of a system of interaction with employers, studying the labour market and the demand for educational services;
- nodal challenges: the development of mechanisms (algorithms, technologies) for the economic stimulation of the research activity of teachers and students; the implementation of continuity at the junction of the comprehensive school (gymnasium, lyceum) and the classical university; the development of continuity in the unity and consistency of the stages of education and upbringing, the development of the internationalization of education, the opportunities for the training foreign students, the development of academic programs in English, network, distance and other forms of training at the international level;
- resulting challenges: development of regulatory and legal framework, justification of technologies for transforming the social status of the future teacher as a teacher of the XXI century (mobile, communicative, reflexive, broad-minded, creative); the provision for the organization and maintaining the system of lifelong learning of the university teaching staff and student groups in the modern information and gameoriented environment, the provision for the academic mobility of the faculty and the students;
- autonomous: generating multicultural content for training teachers to work with migrants (or with a mixed /ethnic school populations);

developing distance education system (online resources), increasing the number of users of university online resources, developing information provisions for educational process with modern information and communication tools.

Conclusion

The design and implementation of technologies for the organization of teacher education made it possible to identify a complex of challenges requiring special attention in classical universities. These include: an underestimation by the scientific community of the classical university of the role and importance of teacher education; undeveloped diagnostic tools for the organization of competent selection of applicants for pedagogical professions, etc.; the priority of education research in the field of problems of history and the theory of pedagogy, with a consistent decline in the research interest in topics that are in demand in school and university practice; absence of conceptual bases of the organization of the Arts and Science education not only in the university, but also in the secondary school; inadequacy (in accordance with the accepted standards of psychological, pedagogical, didactic bases) of preschool, primary, secondary, higher, postgraduate education. To solve these problems, the experimental programs for professional retraining of undergraduate students (those majoring in Mathematics, Physics, Biology, etc.) for a subject teacher (teacher of Mathematics, Physics, Biology, etc.) were successfully launched at Kazan Federal University.

The matrix of the problems of the technological organization of psychological and teacher education in classical universities shows that among the typical shortcomings there are issues of methodological, organizational, structural character; moreover, up to now universities face the challenges of all types - root, nodal, resultant, autonomous. To a greater or lesser extent they are characteristic for universities in both Russia and Western Europe.

Recommendations

Under the conditions of transformation of higher education, it is necessary to pay attention to the methods and forms of economic stimulation of the

development of teacher education, in which the objective and subjective components are singled out.

If the objective component includes a set of intangible, material and natural resources involved and not involved in the teaching practice and having a real opportunity to participate in it, the subjective component is the staff (faculty), its professional knowledge and skills; values and motivation; working capacity, mental and physical health; as well as the ability to communicate, interact and manage.

The latter is one of the most valuable resources – the managerial potential of the institute of teacher education in the framework of a classical university.

All this brings to the fore the problem of an effective assessment of the available managerial potential and its development.

Part 6. Education Reform at the University and the New Strategy for Training Teachers

Abstract

The urgency of the problem of designing a new strategy of teacher training due to the reform of education in universities: decrease of pedagogical disciplines, strengthening fundamental (subject) training, etc. The goal of the article lies in identification of the main components of the new strategy of teacher training. A leading approach to the study of this problem was personological. The result was a new model of teacher training. Undergraduate students are deepening their knowledge of the core subjects (be it Mathematics and Physics or Chemistry and Biology), while graduate students are making a choice: whether to be an engineer, researcher, scientist (which means keep deepening one's knowledge) or be a teacher (which means master psychology, pedagogics, and the methodology of teaching a chosen discipline). The new approach has helped identify the indicators and determinants of pedagogical craftsmanship. The results of the study can be useful in designing new strategies for training teachers.

Keywords: education reform at the University, personal developmental model, indicators of pedagogical skill of the teacher

1. Introduction

In the early 2000s already, there were adopted fundamental documents setting out the priorities and major objectives of state policy in the educational sphere (National Doctrine of Education in the Russian Federation through to 2025, Concept of Modernizing Russian Education for the Period through to 2010, Federal Target Education Development Program for 2006-2010, and Priority National Project "Education"). These documents set out the major focus areas of reforming the Russian system of higher education, the reforms aimed at preparing teachers of a new type.

However, there immediately emerged negative trends: science and education's being not accustomed to new – market – conditions became the primary reason behind a slowdown in the implementation of the reforms. This was pointed out by participants in the 42nd International Symposium on Engineering Education "Global Challenges in Engineering Education" (September 25-27, 2013, www.igip-online.net), the 16th International Conference on Interactive Collaborative Learning (September 23-28, 2013, www.icl-conference.org), the International Research-to-Practice Conference "Modern Issues in the Didactics of Secondary and Higher Professional School" (October 1-2, 2013), the 3rd International Research-to-Practice Conference "Early Childhood Care and Education" (November 21-23, 2013), and others.

2. The Study: An Analysis of Documents and Sociological Surveys

The Concept of the Long-Term Social-Economic Development of the Russian Federation for the period through to 2020, which was worked out by the Government of the Russian Federation, stresses the need for creating and adopting a modern innovation model of education. This was also pointed out in the Concept of the Federal Target Program "Scientific and Pedagogical."

Human Resources of Innovation Russia for 2009-2013," which is aimed at creating conditions for the effective reproduction of scientific and scientific-pedagogical human resources, entrenching youth in the sphere of science, education, and high technology, and maintaining the continuity of generations.

Changes that took place over the period of educational reforms aggravated a number of issues associated with the adoption of new generation standards, a shift to a multi-level system, and a change in the conditions of the operation of colleges, which led to an increase in load on teaching staff. Note that,

according to Yu.V. Sorokopud (Sorokopud, 2012), over 70% of college instructors have hard time working out and reworking academic complexes of disciplines based on the new generation Federal State Educational Standard of Higher Professional Education (FGOS VPO), 75% – putting into practice interactive forms of conducting classes, over 50% – using information technology, including the Internet, in the educational process. At the same time, the quality of professional preparation is in large part governed by the efficacy of the use of the resources of the educational environment in colleges by instructors.

The Russian system of education is known to aspire in the process of reformation to using the American educational model. Note that the Russian system of higher education has been borrowing both the structure of education and professional orientation titles (master, bachelor), as well as forms of education (distance learning instead of part-time), pedagogical technology, etc. The orientation towards the competence approach recommended by the Council of Europe has been realized in developing educational standards and pre-school, elementary, secondary, and higher education programs.

However, the penetration of market relations into the organizational mechanisms of education force Russian colleges to look for a new quality of offered educational services that would interest the modern consumer, which is possible on condition that the challenges of time are met and the prognostic approach in educational strategy is actualized (Matyushkina, 2013; Rostovtseva, 2005).

Diversification as a condition for preparing teachers in new conditions is a poly-functional phenomenon. It compensates for drawbacks objectively existing in the system of pedagogical education, complements and perfects it in the context of the principle of continuous education. Apart from the social-pedagogical and management functions, diversification also fulfills the function of forming corporate culture not only in colleges but in educational institutions for which it prepares bachelors and masters: diversification is aimed at forming the innovation potential of the development of individuality as well as special competitive qualities of educational institutions (pre-school children's organizations, schools, gymnasiums, lyceums) in the market of educational services.

The paradigm of education is rapidly changing right before our eyes: the pedagogue is increasingly acquiring the qualities of not just an instructor/researcher, but those of a psychologist, engineer, or constructor.

However both in Russia and abroad, despite an evident shift in the paradigm of education, the personality of the learner is viewed not only from

the standpoint of the "professiogram" as a certain model but from that of anthropocentrism as a person (in an increasingly more personified – personality- developing, subject-oriented, and individualized – form). This is why at Kazan State University they have developed a personified model for preparation of instructors – when at undergraduate level students deepen their knowledge of the core subjects (be it Mathematics and Physics or Chemistry and Biology) and at graduate level they make a choice: whether to be an engineer, researcher (which means keep deepening their knowledge) or be a teacher (which means master psychology, pedagogics, and the methodology of teaching a chosen discipline). The Institute of Psychology and Education at Kazan Federal University is the largest educational facility for preparing pedagogues and psychologists in the Volga Region; it has all the levels of higher education: undergraduate, graduate, post-graduate, and doctoral level studies, as well as a developed system of advanced training and retraining for educational workers. The mission of the Institute of Psychology and Education is the organizational- pedagogical, scientific, and methodological support of the development of higher professional, post-college, and additional education across areas, majors, and specialties relating to the sphere of pedagogics and psychology.

Currently, (both in Russia and abroad – in England and the US) humanitarian personology is viewed as a means of personifying predominantly higher professional education. Note that personification is construed not only as appealing to individuality but a form that helps see new reserves in the strategy of learning, which is aimed at actively engaging the learner not only in the processes of self-learning but those of self-actualization (Belyakova, 2009; Yesaulova, 2012; Korneyeva, 2004).

In the West, the issue of personification is currently viewed in the context of multi- cultural society and poly-cultural education. For instance, Christine E. Sleeter in her book, which is actively used in many European colleges as a learning guide, stresses: "Multicultural education is a relatively new field that has faced a constant struggle for legitimacy, even though the issues it addresses regarding human difference, social justice, and the form education should take in a pluralistic society are as old as the United States. Conservative educators criticize or dismiss multicultural education as radical and misdirected. Twenty years ago, Harry Broudy (1975) argued that the stress on cultural diversity is divisive and will lock out minority groups from the system by failing to teach them "to participate not only in the culture of this country but also in the intellectual and artistic achievements of the human race." Recently conservative critics such as E. D. Hirsch (1990) have put forth the

same objections, claiming that in their attempts to teach children about diverse groups, schools have produced culturally illiterate Americans who have little sense of a shared culture. Such criticisms are hardly surprising: since multicultural education challenges conservative beliefs, one would not expect it to garner much conservative support» (Sleeter, 1996).

"Culturally illiterate Americans" the book's author is speaking of, are very much like culturally illiterate Russians, whose generation grew up already amid the "reformation" of school. The similarity between situations in different countries makes issues brought up in personology topical. Even more so that Russia is a multi-national state with complex interconfessional and intercultural relations. In terms of personology, one can wonder why some are law-abiding citizens and others are inclined to deviant and marginal behavior, why "an attitude of care towards national culture" sometimes provokes nationalism, separatism, extremism, etc.

The term "personology" is known to have first appeared in the works of Henry Murray, a physician, Doctor of Philosophy in Biochemistry, psychoanalytic, explorer of the oeuvre of Melville, and long-time Director of the Harvard Psychological Clinic in the School of Arts and Sciences (Murray, 1938; 1943; 1994; 1951).

The emergence of the term was caused by the author's aspiration to accentuate the need for the integral study of personality, which, first, possesses not only a social but biological nature and, second, lives and develops within a certain environment and a certain socio-cultural context. Furthermore, Henry Murray's personology is more a theory of motivation than a theory of personality. In pathopsychology, he is the creator of the Thematic Apperception Test, which was widely used in the clinic and was later adapted by American psychologists D. McClelland and J. Atkinson to the study of man's primary motives as a whole (content- analysis): the need for success, power, and belonging (McClelland, 2003).

Henry Murray was among the first scholars to view motives as sustainable personal dispositions. However, that said, in his article "Toward a Classification of Interactions" (Murray, 1994) he concluded that goal-oriented behavior can be explained only as the result of the interaction of personal (the need state as the desired target state) and situational ("pressure" as symptoms of a situation, which one can hope for or which one should be apprehensive about) factors: "pressure" actualizes a corresponding need, while the need looks for a "pressure" that matches it; their crossing was denoted by Henry Murray as the "thema." Thanks to this approach, Henry Murray influenced modern interactionism. He developed a number of methodologies for the study

of personal needs, including the Thematic Apperception Test (2003), which was based on his list of needs and presses, which earned him worldwide renown.

Transforming the ideas of personology into pedagogical forms of personification, V.A. Petrovsky notes (Petrovsky, 2007) that it is not a discovery today that the "psychology of personality" is not one psychology but two: fundamental psychology (also known as "academic") and practical psychology (the practice of psychological consulting). Each of the two occupies its own niche in the public consciousness and life of society. They differ in everything. Issues, approaches, credibility criteria, the categorical apparatus – all this is different. "Objectivity," "Truth," "Determinism," "Hypothesis," "Term operationalization," "Statistical methods," "Result interpretation," "Learning," and so on – such are the terms of fundamental science. "Subjectivity," "Freedom – Responsibility – Choice," "Psycho-technical myth," "Metaphor," "Uniqueness," "Understanding and acceptance," "Growth of the personality from the inside," and so on – this is how practical psychology "positions" itself. Psychologists/researchers and psychologists/practicians publish their works in different journals and have different reading audiences. In Russia, the differences cut across even the material well-being of those in each of the two camps (to be a successful practicing psychologist means to be able to make some a sort of a living, which partially explains the wave of retooling academic psychologists, who virtually have poured into practice).

Thus, "general personology," in terms of the conception of its design, is a psychological theory of personality, which acts from the side of the effects of its impact upon the personality; practical psychology as the applied psychology of personality. Theory and practice face to face. The context of the formation of new personology is made up of anthropology, social practice, and pedagogical anthropology (which connects the former with the latter). For the relations between objective reality, activity, culture, and personality are not that simple. Meaning is virtual by nature, reflects not the instantaneous but the relatively permanent relation of a specific person towards the objective world – "relatively" because it is meaning that is the mechanism which but reflects and expresses the dynamics of change in this relation; it is that in the psyche of man which ensures the possibility of a "leap" in the relations between man and the world (Petrovsky, 2002). For meaning- making is a process of the creative mastering of ways of world-perception, world-relation, and culturological activity, which were created by man in the process of social development, by subjects of education (Petrovsky, 2007). However, in Russia

there is still used for evaluating pedagogues a formalized list of competencies which includes competencies in goal-setting (material, personal); competencies which ensure bringing the personal meaning of learning to light; competencies in the learner's comprehension; competencies in decision making; competencies in ensuring the comprehension of academic problems and work methods; competencies in organizing learning activity; competencies in ensuring motivating behavior and learning activity; competencies in the subject taught and in methods; competencies in working out program activity; competencies in ensuring the information basis of activity. As we can see, in competencies there is not even a hint of the self-creating principle in subjects of the educational process – ones instruction is provided to (pupils or students) (The Theory and Practice of the Assessment of the Qualification Level of Pedagogical Human Resources in the System of General Education, 2013).

D. I. Feldstein stresses that while "changing and developing our society, we ought to come up with means of preparing pedagogues capable of directing their disciples towards socio-cultural changes, including changes in one's attitude towards oneself, others, as well as one's attitude towards acquiring knowledge. Research findings reveal that about 80% of senior high school students understand the need for acquiring knowledge. But this understanding does not grow into a need, for we do not know how to foster one's attitude towards knowledge as not just a way to acquire a specialty but as a self-forming principle" (Feldstein, 2011). It is just the "self-forming principle," or self-creating principle, that sets the personified approach apart from the person-developing, individual-differentiated, nature-aligned, etc., approaches.

Thus, in some cases, the personification of education is a tradition (a very conservative one at that, like, for instance, in England, the US, or France), in others it is an innovation that dispels entrenched stereotypes (both in Russia and the CIS states). At the moment, in the setting of the humanization and democratization of society, there are taking place processes of transforming and upgrading the system of higher education, whose major objective is the making of a personality with a high level of intellectual, moral, and cultural development. As is noted in the Federal State Educational Standard, graduates must have readiness for working with colleagues, the ability to come up with adequate organizational-managerial solutions in non-standard situations, the ability to take stock of one's virtues and drawbacks, chart ways of and choose means for developing one's virtues and getting rid of one's drawbacks, must possess a culture of thinking, the ability to set goals and come up with ways to achieve them, i.e., be a highly moral, socially mature, creatively active

person with a developed potential of interaction, capable of self-actualization and getting connected at professional and personal level, which actualizes the use in the educational process of a new, productive, type of interaction between the instructor and the student, in realizing which there takes place not only the exchange of information, knowledge, and skills but personal emotional and communicative experience, settled views and assessments, and the student is a full participant in the well-organized educational process constructed inclusive of one's personal needs and motives of behavior.

The degree of personification (personal and professional self-development, self-creation) of the pedagogue and the disciple at schools of higher professional learning is also influenced by economics, politics, and changing socio-cultural conditions.

A primary distinction of the world's leading universities from Russian ones is, on one hand, the former's attitude of care for their traditions, the conservatism of established models of learning and, on the other hand, academic freedom both for students and instructors, which helps personify the entire educational process. In the Russian system of higher education, traditions are being broken and economic innovations (normative per capita funding, teaching staff optimization, etc.) do not yet improve the efficacy of personified approaches many Russian colleges employ. Meanwhile, the West's leading universities are unremittingly developing their personified system of education, which is expressed, on one hand, in the theory of extreme individualization, in granting the student full freedom in choosing the content of education and methods for mastering it and, on the other, in focusing on students' divergent thinking, which enables them to realize the multi-variant approach to examining educational and creative issues.

3. The Methodology of the Experiment

During the course of experimental studies we conducted over the period of 2012-2013 (Gabdulchakov, 2011a, 2011b, 2011c; Gabdulhakov, 2013a, 2013b, 2013c), we marked out the following indicators for the personification of academic communication in colleges:

- the personal indicator (the degree of self-actualization of the student's personality); the empathic indicator (the instructor's ability to put oneself in the student's shoes and look at the world from the student's eyes);

- the reflexive indicator (the emotional field of the class, the field of joy, surprise, admiration, and happiness); the cognitive indicator (taking account of the value system of the personality of the student and the instructor); the interactive indicator (the unity of the conscious and the unconscious);
- the nuclear indicator (the realization of the communicative nucleus in communication and academic-cognitive activity); the integrative indicator (the integrativeness of academic content); the nature-aligned indicator (taking account of the individual pace in the development of personality);
- the attractive indicator (the attractiveness of the content and form of the class); the result indicator (the practical orientation of the content of the class). These indicators were identified based on Spearman's correlation analysis and established the dependence of mechanisms of creative (personified) self-actualization of the personality of students on the instructor's creativeness (pedagogical craftsmanship).

The total sample of test subjects featured 2347 students of different specialties.

4. The Results of the Study

The indicators identified helped prove that the efficacy and prospective viability of personified education in Russia is determined by the following components:

- poly-paradigmal, if we view it as a research methodology which presupposes openness to various visions of the issue of forecasting and designing the future of the school of higher learning; providing a rationale for innovation strategies for the development of higher education in a conceptual synthesis of a set of existing educational paradigms; being oriented towards the practical result of applying transforming strategies and innovation technology to various types of pedagogical practices and various models of higher education; identifying the priorities of innovation strategies in forming a single educational space in the globalized world;

- noxological, which by all means must be taken into account in building personified education: this education must be not only safe but oriented towards the development of health protection and the formation of a culture of health;
- reflexive: the reflexive technology of organizing the professional-personal self- development of future pedagogues is a special organizational-pedagogical processual mechanism for realizing the interrelated reflexive stages in the enhancement of the instructor's professional activity: 1) reflexive-analytical (the diagnostic stage); 2) constructive-orientational (the instructional stage); 3) stabilization (criterial-evaluative stage); 4) systemic reflexion (the prospective-design stage);
- strategic: future pedagogues' life strategies bring out internal contradictions: between the terminal and the instrumental, between traditional and modern value systems, which emerge under the influence of factors of objective and subjective risk in combination with the material conditions of the life activity of various groups of youth;
- spiritual-moral: reliance on culture requires a pedagogically organized process: only in a pedagogically organized process there takes place the conceptualization of personified ideals of culture and are created conditions for the spiritual-moral development and bringing-up of students;
- individualized: this component helps view the preparation of future pedagogues as the development of personality, which acts as an active subject of academic activity aimed at education, self-development, and self-perfection throughout one's entire life;
- personality-oriented: the subject position of future pedagogues includes the motivation-value, cognitive, and regulative-activity aspects, which define its levels and indicators.
- subject: the following can be the criteria for the efficacy of the personality-oriented approach in work on the development of the academic independence of students included in the structure of personified education: the degree of one's consciousness of life, recognition of the values of growth and development as primary in it; one's positive perception of oneself, the profession chosen, viewing it as an opportunity to realize one's interests, potential, and values; internality; creativity; openness to life and readiness to keep learning;

- anticipational: anticipation amplifies the personification of education if one creates conditions for, above all, the regulative components of anticipation, i.e., granting students, through special organization of joint learning activity, the opportunity to take part in goal- setting, planning their learning activity and control over it; ensure students' forecasting of the content, types, and results of academic work at all or most stages of the class; in developing techniques for organizing the structural stages of the class take into account the interrelationship between the regulative, cognitive, and communicative components of anticipation;
- competence: this component presupposes including the complex of professionally oriented academic objectives ensuring the realization of the discipline's integrative links with other disciplines; the realization of context technology which governs the choice of forms, methods, and means of learning oriented towards the formation of students' motivational-value orientations, subject knowledge, abilities, skills, and personal qualities, which form the foundation of graduates' general cultural and professional competencies; the engraining of computer technology into the process of professionally oriented learning inclusive of its content and processual components; the organization of systematic monitoring of subject educational results meeting FGOS VPO requirements.

Table 1. The level of mastering pedagogic competence (%)

Bachelors and masters by years of study	Summary ofthelesson	Thelesson	Thedevelopment ofcreativity	Monitoringknowledge
3rd year, bachelor	20	27	24	12
4 year, bachelors	18	21	11	7
1 course, masters	15	42	64	82
2nd year, masters	12	48	61	88

The study analyzed the pedagogical competence: the ability to write the summary of the lesson, the ability to conduct a lesson, the ability to develop

creativity in students, the ability to monitor students' knowledge. In pedagogical experiment involved 412 students (287 - bachelors, 125 - masters). Bachelors practitioners were diagnosed concurrently with masters first 2 years of operation. The results show (see Table 1, chart 1): master can significantly improve the pedagogical competence of students.

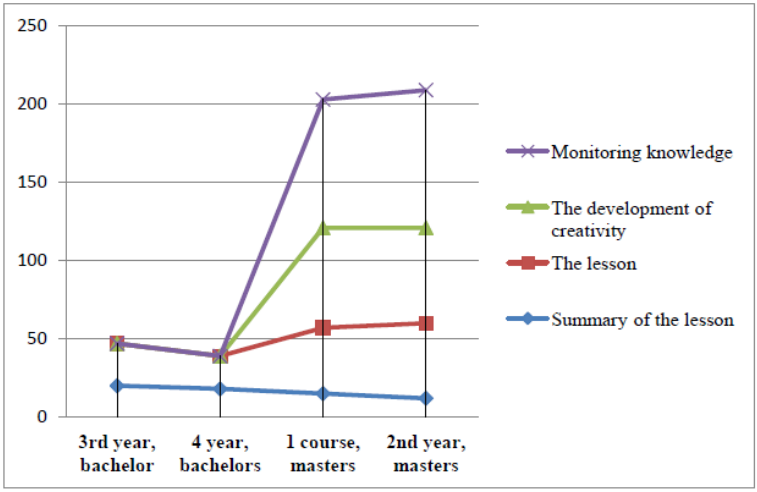

Figure 1. The level of mastering pedagogic competence (%).

5. Discussion

The results of the study conducted made it possible to view personification as the orientation of education towards the development and realization of the potential of each specific student in resolving life and professional issues; as the organization of pedagogical interaction inclusive of the individual characteristics of the student, instructor, and tutor; as the use of the technology of pedagogical support for and activation of the student's professional activity in the process of resolving academic-professional objectives. That said, amid the realization of the personified system, there is also likely to be the need for a special principle of personification associated with the realization of not only personality-oriented, individualized, reflexive, etc., approaches but also approaches orienting towards the self-creation of the student's personality and the making and development of language personality (personality with an individual image of language behavior) in a mixed language environment.

Tutor practice in personified education realizes the accompaniment of the entire process of construction of one's own educational program by the disciple, starting from work with one's initial cognitive interest, through deepening this interest via educational research or projects and special work on the formation of this project as educational, to tutor consulting in the area of professional educational programs.

We construe the technology of a personified type as an algorithm for the reflexive activity of two subjects of the academic-cognitive process (the instructor and the student). The algorithm is aimed at boosting the level of knowledge, developing processual (intellectual, cogitative, communicative) qualities of the student's personality, and activating one's creative independence. The algorithm comprises problem lectures which activate discussing problems dealing with students' personal educational and professional interests. Lectures provoke students to discussion and help chart individual routes of independent and project activity aimed at solving problem set. The algorithm includes seminars, workshops, consultations, on which the degree of the student's personified progress along one's route is fixed. All routes end in a conference/discussion that presents the results of each student's project study.

There are two "methodologies" in the technology of a personified type: a methodology (scenario) for the instructor/tutor and a methodology (scenario) for the student – two subjects of joint activity. The technology is built on such psychological-didactic principles as: the unity of the conscious and the unconscious in mastering the educational space and procedures for realizing it in everyday activity ("this is interesting!"); the consistent formation of the communicative nucleus through a system of stimuli which urge one towards the speech realization of an individual-personal notion of what is discussed in class ("my opinion!"); the maintaining of a high level of difficulty in operations related to the algorithmic synthesizing of learning material ("I got it!"); the creation of a pedagogical communication of equality under which the instructor and students have equal dialog interaction functions, which help transfer students from the position of an object of education to the position of an active subject of self-learning ("I did it myself!"); the formation of a nature-aligned system of self-learning under which everyone moves towards one's (often figmental) image (ideal) of a pedagogue ("I can do it too; I have ability too!").

Conclusion

The new approach has helped identify the indicators and determinants of pedagogical craftsmanship. The results of the study can be useful in designing new strategies for training teachers (Gabdulchakov, 2016).

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