
Impact of Teacher's Professional Identity on Technology Integration using Structural Equation Modeling**AUTHORS: Kashmala Khan***PMAS-Arid agriculture university, Rawalpindi, Pakistan*

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Abstract: *The way teachers position and use technology in the classroom is greatly influenced by their professional identities, which shape how they interpret and behave in their teaching work. The professional identity of teachers are the set of beliefs, values, and practices that define their roles as educators. In the Azad Jammu and Kashmir region, it is vital to examine the professional identity towards educational goals. The study's goal was to examine teachers' professional identity orientation toward integrating technology into the classroom. Smart PLS Structural Equation Modeling was used to determine model fitness, and Origin software was used to determine, agreeableness, means, and adjusted R^2 . Using a sample of 410 faculty members from the universities of Azad Jammu & Kashmir, it revealed that teachers professional identities i.e. didactic and pedagogical orientation, learner centered orientation, teacher centered orientation and subject matter orientation significantly use technology for transformation and enrichment. The results of this study indicate a significant and positive connection between the model variables.*

Universities should offer targeted professional development programs that focus on developing teachers' technology competencies and integrating technology into their teaching practices. Furthermore, this study may be helpful for a teacher to use different technological approaches to get educational goals.

Keywords: *Professional identity; Teacher technology Use; Technology adoption; Technology integration,*

Introduction

There is no denying the value of technology in the classroom, hence this study will concentrate on teachers' usage of technology in the classroom. Technology adoption will be the key area of attention in order to examine the mediating effect of technology transformation and technology enrichment on teacher centered orientation, learner centered orientation, didactic and pedagogical orientation and subject matter orientation.

Today's classrooms and learning environments are very different from those of ten years ago. Technology is constantly evolving, thus it is crucial to prepare students for this dynamic world. To support the educational process, significant investments have been made in education, and many institutions now have access to technology.

A teacher's identity is made up of a complex, interesting, and dynamic combination of elements from their personal and professional lives (Husu & Clandinin, 2017). The concept of teacher identity (TPI) is built by the person who performs the role and is based on a person's values, feelings, attitudes, ethnicity, and culture. TPI is not associated with an educator's role as a teacher (Forde et al., 2006).

Teaching Professional Identity (TPI) has the ability to play a crucial role in the teaching profession's long-term success, professional development, and teaching quality (Rots et al., 2010). Teachers' dedication to their work as well as their self-efficacy, or confidence in their ability to complete their tasks, are crucial components of their professional identities and have a significant impact on students' performance and attitudes (Day et al., 2005).

Technology is becoming an essential component of both daily life and education. In the modern educational system, teachers must be proficient in technology. Technology integration is a technique for employing technology to support teaching and learning activities both within and outside of the classroom (Guzman & Nussbaum, 2009).

For decades, researchers have been interested in how educators employ technology in classroom factors of the first order and second-order elements that are intrinsic are being found as influencing factors in research. The accessibility of resources like tools, time, training, and guidance. Faculty members' notions of change and the importance of technology, as well as their overall ideas, one's technical literacy and specialized talents, general educational and learning views, and knowledge and expertise in the pedagogical use of technology are all inherent elements (Woolfson & Brady, 2009).

The integration of technology into the classroom has become an increasingly important aspect of modern teaching, and it has a significant impact on teachers' professional identity. As technology becomes more abundant in the classroom, it is changing the way teachers think about their role and their relationship with students (Murray, 2017)

One of the ways technology is affecting teachers' professional identity is by requiring them to adapt to new teaching methods and tools. In order to use technology effectively in the classroom, teachers must become proficient in the use of digital tools and platforms, as well as understand how to incorporate them

into their pedagogical approach. This requires ongoing professional development and a willingness to embrace new ways of teaching (Hsieh, 2015).

It is proposed that teachers' professional identity in relation to the adoption of learning technologies should encompass work-related identity, how they prefer to work and how they see themselves as a teacher; teaching-related identity, how they perceive and conduct teaching; and technology-related identity, how they perceive the role of and use technology at work (Geertshuis & Liu, 2016). When implementing new teaching methods, a teacher who has a wider perspective on what it means to be a teacher and who is more dedicated to the profession could feel more engaged. It is simpler for a teacher to make sense of a situation when the learning technology supports his or her pedagogical principles and implements the teaching style they like (Veen & Slegers, 2006).

Teachers having modernist ideas were more likely to utilize technology to promote learner-centered programs, while those having traditional views were more likely to use computers to support teacher-focused curricula. As a result, it became obvious that simply increasing computer access was not enough to transform teachers' technology practices, especially if the increased access does not coincide with a change in instructors' instructional views (Hermans et al., 2008).

Researchers have discovered that teachers having a teacher-centered viewpoint employ technology in a more controlled and disciplined way with the primary goal of supporting knowledge attainment (Asan, 2002). Teachers' conceptions of instruction and their classroom practices with technology were found to be closely aligned: teachers who maintained learner

centered perspectives were able to use technology to enhance student learning. According to additional study, educators who maintain a learner-centered approach to instruction are more likely to employ technology in effective manners outside information transmission, such as encouraging learning and permitting and encouraging learner-centered technology use (Hermans et al., 2008).

Several traits of teacher professional identity may affect how educators place technology in the classroom since professional identity is at the core of teachers' sense-making about how to conduct, act, and perceive their work (Sutherland et al., 2010). This study's goal is to investigate a how different aspects of teachers' professional identities place technology in the teaching process for technology adoption.

Main objective of this research is

- ✓ To investigate the teachers' professional identity towards educational goals and learner-centered orientation.
- ✓ To identify the technological integrated approaches that affect learning transformation
- ✓ To investigate the existing professional identity in understanding technology integration and technology use

The study will deal with the following research questions:

- ✓ What are teachers' beliefs and values about learner-centered orientation and educational goals, and how do these beliefs influence their teaching practices?
- ✓ What technological integrated approaches are most effective in transforming?"
- ✓ What are the current professional identities of teachers in terms of utilizing and integrating technology?

Literature Review and Hypotheses Formulation

Studies show that teachers have a crucial role in achieving institutional improvements and changes, particularly those that have an impact on teaching and learning. Given that instructors ultimately decide what to teach, when to teach it, and how to teach it in the classroom, this is hardly surprising. They select and use materials to support their lectures as needed, and they apply material to help them achieve class objectives Kiewra (2002).

In order to successfully perform numerous activities and tasks in many sectors, the educational sector has used technology to enhance and make the teaching-learning process more appropriate, effective, and efficient for the students as well as the teachers (Baytak et al., 2011).

According to studies, teachers' attitudes on using technology in the classroom is a key predictor. Technology integration takes into account attitudes and practices related to technology use. As a result, the use of technology in the classroom might be influenced by the pedagogical ideas of the teachers. In other words, when utilizing technology in the classroom, teachers put their pedagogical ideals into practice (Teo et al., 2008).

When teachers believed their use of technology related to their identity, they were more willing to participate in technology. For instance, Teachers with tech-savvy identities, are more comfy using technology in their teaching and constructivist educators are more responsive to use technology in their instruction (Wang et al., 2014).

Teachers' professional identity is multi-dimensional and hierarchical in the way it links to components of the teaching profession, and it is prioritized by individual preferences. Professional identity should be viewed as subject experts,

pedagogical experts (emotional and ethical), and didactic experts and should encompass the subject of instruction, the connection with students, and role perception (Hogberg, 2021).

Numerous research has examined the benefits and potential of technology integration for teachers and students. This is because technology is viewed as appropriate for students of all ages, from pre-school to universities. When utilized correctly, these tools can help teachers offer more interesting lectures, strengthen student cognition and improve student understanding improve students' language writing skills and assist learners in gathering and investigating data, thinking critically, and drawing networks to real-world lessons (Fakhruddin et al., 2019).

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A teacher's professional identity plays an important role in their ability to contribute to education progress, which involves helping students to achieve their full potential and improving educational outcomes more broadly. Teachers who have a strong professional identity are better equipped to engage with their students, collaborate with their colleagues, and contribute to ongoing improvements in educational practice (Doecke, 2004).

The usage of technology in education is undesirably correlated with teacher-centered orientation, whereas learner-

centered orientation is favorably and considerably associated with teachers' desire to adopt technology in classrooms (Clausen, 2007).

Gray et al. (2010) stated that introducing more technology into the classroom alone was insufficient to alter instructors' technological habits without a change in the way they taught. In general, teachers encountered obstacles that prevented them from employing technology in ways that complemented their educational practices, such as a limited curriculum and a lack of training.

Variables Explanation

Didactic and pedagogical orientation (DPO): Independent variable

Teachers with a didactic and pedagogical orientation concentrate more on making a pleasant learning atmosphere to encourage and support student progress, additionally, effective learning experiences should be developed to stimulate students' interests and aid in their learning in a fun and meaningful manner. These educators could be more inspired to motivated to make use of technology to help create a learning environment that is focused on students and to improve students' learning experiences (Löfström & Poom-Valickis, 2013). Teachers may represent themselves as experts in didactics and pedagogy who respect the learning process and use their expertise to give students engaging, efficient subject learning opportunities. Teachers with a didactic and pedagogical orientation are always looking for new ways to engage students and create a comfortable environment in the classroom (Beijaard et al., 2000).

Teacher centered orientation (TCO): Independent variable

While the students are in a passive, receptive phase, listening to what the teacher is saying, the teacher is actively engaged in teaching. This is referred to as a teacher-centered strategy. Students are discouraged from working in groups or collaboratively. The instructor is the focal point of all classroom activities in a teacher-centered approach. Educators usage of technology is shown to be more controlled and constrained when they have a teacher-centered orientation, with the main objective of assisting students in developing their skills Martin and Vallance (2008). . Instructors may adopt a content/teacher-centered approach, focusing more on conveying a predetermined set of knowledge and abilities (Narayanan, 2020).

Learner centered orientation (LCO): Independent variable

Teachers with learner centered approach change their role from an information provider to a learning facilitator. This makes students more accountable for their own learning progress and boosts their involvement in the learning process from information provider to learning facilitator(Darsih, 2018). Instead of relying solely on their teachers' knowledge, constructivist students learn by doing and experiencing things for themselves (Weimer, 2013) .Additionally, a learner-centered approach to instruction is connected to the use of technology in scattered ways. Learner-centered orientation, according to studies, influences instructors' intentions to employ technology for instructional purposes by changing their views of its effectiveness and value. Teachers may choose to use a student-centered approach that emphasizes learners active participation in knowledge building and learning process (Emaliana, 2017).

Subject matter orientation: Independent variable

Subject Matter Orientation is a teaching approach that focuses primarily on the content or subject matter being taught. In this approach, the teacher is considered to be the expert on the subject matter, and the goal is to ensure that students acquire a deep understanding of the material being taught (Lai & Jin, 2021).

A subject matter approach is typically connected to a teacher centered philosophy that places a strong emphasis on information transfer. This emphasis on information transmission may lead to increased usage of technology for delivery of material (Anderson & Clark, 2012). Subject-matter-oriented teachers devote a significant amount of time to selecting the most relevant learning content for their students (Beijaard et al., 2000).

Technology Enrichment: Mediating variable

Technology enrichment refers to the process of using technology to improve or enhance a particular aspect of life, whether it's personal or professional. It involves using technology to make tasks easier, more efficient, and more effective. Technology enrichment can take many forms, such as using software to automate repetitive tasks, using artificial intelligence to improve decision-making processes, or using virtual reality to enhance learning experiences (Kurt, 2014).

In the context of education, technology enrichment can refer to the use of technology to enhance or supplement traditional teaching methods. This might include using interactive tools and multimedia to make lessons more engaging, using educational software to personalize learning, or providing remote or online learning opportunities (Grasha & Yangarber-Hicks, 2000).

Teachers can use a variety of technology enrichment tools in the classroom to enhance their teaching and engage students in the learning process. Learning management systems (LMS) can be used to deliver course content, organize learning activities, and provide assessment and feedback to students. Teachers can use these systems to manage and track student progress, provide timely feedback, and adjust instruction based on individual student needs (Duhaney & Zemel, 2000).

Technology Transformation: Mediating variable

Technology transformation refers to the process of integrating new and emerging technologies into an organization, business, or society with the aim of improving operations, increasing efficiency, and driving innovation. It involves the adoption of new technologies that can fundamentally change the way people live, work, and interact with each other (Garrison & Akyol, 2009).

Teachers can use technology for transformation to incorporate new technique of instruction and learning, as well as to help students improve their techniques and skills in using technology to learn on their own. For technology for transformation, teachers present students to technical resources and tools that they can use on their own, as well as assist students in learning how to utilize several technological means to improve their job (Ertmer et al., 2012).

Technology adoption: Dependent variable

Technology adoption refers to the process of accepting and using a new technology within a society, organization, or individual's daily life. The adoption process usually involves

several stages, including awareness, interest, evaluation, trial, and finally, adoption or rejection (Straub, 2009).

The adoption of technology can be influenced by various factors, such as the perceived benefits of the technology, its compatibility with existing systems or behaviors, its complexity, and its relative advantage over existing technologies. Other factors that can impact technology adoption include the social norms of the target audience, the availability of resources, the level of education and technical expertise of users, and the level of risk associated with adopting the new technology (Liu & Geertshuis, 2016).

Teachers who used a student-centered or learning-centered approach found a stronger link between their professional views and such advancements. The usage of technology in education is undesirably correlated with teacher-centered orientation, whereas learner-centered orientation is favorably and considerably associated with teachers' desire to adopt technology in classrooms. Didactic and pedagogical orientation utilize technology for transformation and enrichment and thus lead to technology adoption (Clausen, 2007).

Hypotheses Formulation

H1. Didactic and pedagogical orientation have positive influence on technology enrichment and technology transformation

H2. Learner centered orientation has positive influence on technology transformation and technology enrichment

H3. Teacher centered orientation has significant effect on technology enrichment and technology transformation

H4. Subject matter orientation has significant effect on technology transformation while an insignificant effect on technology enrichment

H5. Technology transformation and technology enrichment are closely linked to having a favorable effect on technology adoption.

MATERIALS AND METHODS

Theoretical Model:

Didactic and pedagogical orientation, Teacher centered orientation, learner centered orientation, and subject matter orientation are four distinct types of professional identity that are used as independent variables in this model. Technology adoption is a dependent variable and technology transformation and technology enrichment are the mediating variable.

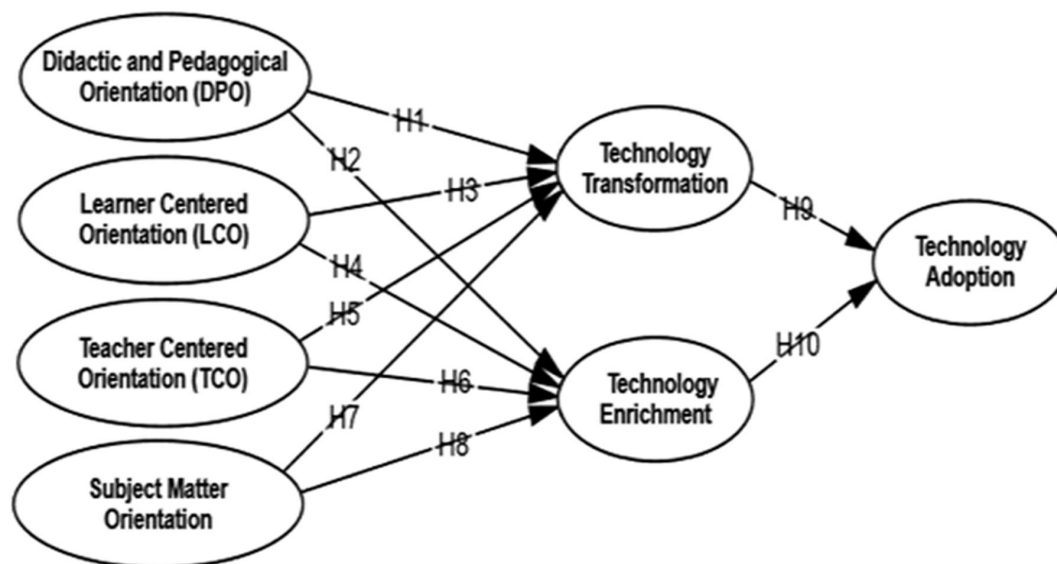


Figure 1 The conceptual model

Participants

In this research study, 410 faculty members from Azad Jammu & Kashmir universities were given a self-administered questionnaire. However, as suggested by Krejcie and Morgan, the 410 active respondents were chosen (1970). With a questionnaire (using a five-point Likert scale), the respondents were asked to rate their degree of readiness to integrate technology in their teaching. For this study, about 45.6% participated were selected females (187 respondents), while 54.4% respondents were males (223 respondents), the high respondents' designation was about 31.7%. The majority of respondents had between 0 and 5 years of

teaching experience. In contrast to the 8.8% of respondents who claimed not to use technology, 91.5% of respondents stated they did.

DATA ANALYSIS

The study was investigated as casual from the faculty members of AJK universities who used the technology for various purposes for technology adoption. Five-point Likert scale questionnaires were utilized to collect the data, and a simple random sampling technique was used as the sample design. Using the SPSS, Cronbach's alpha and average variance extracted (AVE) were utilized to measure the reliability of the data.

The validity and reliability of the data were examined using the SPSS Cronbach's alpha test. Confirmation factor analysis would be

carried out to measure construct consistency as recommended by (Chere-Masopha 2018).

Constructs	Items	Factor Loadings	α	AVE	CR	Construct	Items	Factor loading	α	AVE	CR
Didactic and pedagogical orientation	DPO1	0.719	0.822	0.585	0.875	Teacher centered orientation	TA3	0.855	0.807	0.586	0.849
	DPO2	0.821					TA4	0.781			
	DPO3	0.764					TCO1	0.707			
	DPO4	0.767					TCO2	0.715			

While the values for technology enrichment, technology transfer

Model fitness was assessed using structural equation modelling (Kline, 2015). Agreeableness, means, and adjusted R2 was computed using Origin Software.

RESULTS

This research study used descriptive analysis to determine the faculty members' demographic data. The internal consistency of each item's scale was estimated using the Cronbach's alpha statistic. The allowable value ranges are 0.7 to 0.1. Table 1 demonstrates that the didactic and pedagogical orientation, learner-centered orientation, subject-matter orientation, and teacher-centered orientation have acceptable Cronbach's alpha values of 0.822, 0.838, 0.808, and 0.807, respectively, while technology enrichment, technology transformation, and technology adoption had values of 0.851, 0.871, and 0.809 using SPSS. The values of each construct are over 0.800 when the composite reliability (CR) is taken into account, which is acceptable. The composite reliability values for didactic and pedagogical orientation, learner-centered orientation, subject-matter orientation, and teacher-centered orientation are 0.875, 0.885, 0.874, and 0.849,

mation, and technology adoption were 0.900, 0.907, and 0.874, respectively (see Table 1).

Discriminant validity is a concept in research that is concerned with the degree to which different constructs are distinct from one another. It refers to the extent to which a measure of a construct is not associated with measures of other constructs that it should not be related to, based on theoretical considerations. According to Fornell and Larcker (1981) Table 2 shows the uniqueness of measurements for each construct that explains the discriminant validity. The average variance extract (AVE) and squared correlation (SCR) values for each construct were used to calculate the convergent validity and discriminant validity. The computed AVE and SCR values are both larger than 0.5 and greater than 0.7, respectively. Each construct's diagonal letters in boldface in Table 2 display the square root of AVEs, which must be higher than the numbers in the column below. Each value is higher than the value it corresponds to in the column below, supporting the model (see table 2).

Table 1:

Learner centered orientation	DPO5	0.747					TCO3	0.737						
	LCO1	0.767	0.838	0.608	0.885		TCO4	0.889						
	LCO2	0.795					TCO5	0.855						
	LCO3	0.826				Technology enrichment	TE1	0.836	0.851	0.691	0.900			
	LCO4	0.796					TE2	0.859						
Subject matter orientation	LCO5	0.709					TE3	0.844						
	SMO1	0.795	0.808	0.634	0.874		TE4	0.786						
	SMO2	0.824				Technology transformation	TT1	0.816	0.871	0.660	0.907			
	SMO3	0.767					TT2	0.808						
	SMO4	0.798					TT3	0.817						
Technology adoption	TA1	0.774	0.809	0.635	0.874		TT4	0.830						
	TA2	0.776					TT5	0.790						

Confirmatory factor analysis, Cronbach's alpha, average variance extracted, and composite reliability (n=410)

Table 2: The Discriminant validity (n = 410).

Construct	DPO	LCO	SMO	TA	TCO	TE	TT
Didactic and pedagogical orientation	0.765						
Learner centered orientation	0.581	0.780					

Subject matter orientation	0.651	0.661	0.796				
Technology adoption	0.402	0.397	0.43	0.797			
Teacher centered orientation	0.153	0.254	0.221	0.358	0.735		
Technology enrichment	0.533	0.538	0.497	0.571	0.309	0.832	
Technology transformation	0.528	0.518	0.567	0.667	0.295	0.712	0.812

Figure 2 presents the SEM technique that was used to test the validity of theoretical models by examining the causal relationships

among variables by combining CFA and regression analysis. The structural model in **Figure 2** shows the hypothesized relationships between the variables. A p-value of 0.000 indicates that the results are statistically significant, and the probability of obtaining these results by chance alone is extremely low. This means that there is strong evidence to support the hypothesis that there is a relationship between the variables in the population.

The values of the SRMR, NFI, and Chi-square are presented in **Table 3**. A value of 0.08 or below is regarded as a satisfactory fit for an SRMR model. The model's SRMR, which is 0.065 and below the cutoff threshold, shows that it is well fitted. The goodness of fit of a statistical model is also measured incrementally by Normed Fit Index (NFI). Results from the NFI range from 0 to 1. As the NFI approaches 1, the fit gets better. The model has an NFI value of 0.764, which is near to 1 and shows that it is well fitted.

Table 3: Model Fit Indices

	Saturated Model	Estimated Model
SRMR	0.065	0.081

d_ ULS	2.111	3.263
D_ G	0.683	0.759
Chi-square	1,634.234	1734.196
NFI	0.764	0.749

According to the conceptual framework, **Table 4** displays the regression weights estimation of each casual path, original sample (β), p-values, and t value results. With original samples of 0.240 and 0.305, the findings of this study reveal that didactic and pedagogical orientation has a significant impact on technology enrichment and technology transformation. With estimated values of 0.145 and 0.175, teacher-centered orientation has a positive influence on technology transformation and technology enrichment. With

estimated values of 0.167 and 0.263, learner-centered orientation favourably promoted technology transformation and technology enrichment. Subject matter orientation has a significant effect on technology transformation, with an estimated value of 2.283, but has an insignificant effect on technology enrichment, with an estimated value of 0.107. With estimated values of 0.194 and 0.529, respectively, technology enrichment and technology transformation supported technology adoption (**see table 4**).

Table 4: The Regression Analysis

Construct	Original Sample	Sample Mean	STED	t Statistic	P Value	Results
DPO -> TE	0.305	0.304	0.060	5.105	0.000	Supported
DPO -> TT	0.240	0.242	0.063	3.803	0.000	Supported
LCO -> TE	0.263	0.262	0.059	4.431	0.000	Supported
LCO -> TT	0.167	0.165	0.065	2.471	0.011	Supported
SMO -> TE	0.1075	0.106	0.061	1.561	0.084	Not supported
SMO -> TT	2.283	0.283	0.070	4.050	0.000	Supported
TCO -> TE	0.175	0.179	0.044	4.228	0.000	Supported
TCO -> TT	0.145	0.150	0.040	3.703	0.000	Supported
TE -> TA	0.194	0.197	0.065	2.977	0.003	Supported
TT -> TA	0.529	0.527	0.065	8.144	0.000	Supported

STED=Standard Deviation, DPO=Didactic and Pedagogical orientation, TCO=Teacher Centered Orientation, LCO=Learner TA=Technology Adoption

Centered Orientation, SMO=Subject Matter Orientation, TT=Technology Transformation, TE=Technology Enrichment,

DISCUSSION

Previous research has found that many facets of teacher professional identity, including personal landscapes of teacher professional identity, have an impact on instructional technology adoption Chere-Masopha (2018). This study shed further light on their relationship from a perspective of teacher professional identity orientation on technology use in the Azad Jammu and Kashmir region.

This study attempted to show that a didactic and pedagogical orientation had a favourable influence on technology enrichment and

transformation. Effective teacher training, proper infrastructure, and a thoughtful approach to pedagogy are required for successful technology integration. When used in connection with strong didactic and pedagogical principles, technology has the potential to positively impact the learning experience by increasing engagement, personalisation, collaboration, access to resources, digital skill development, and real-world connections (Skibba et al., 2013).

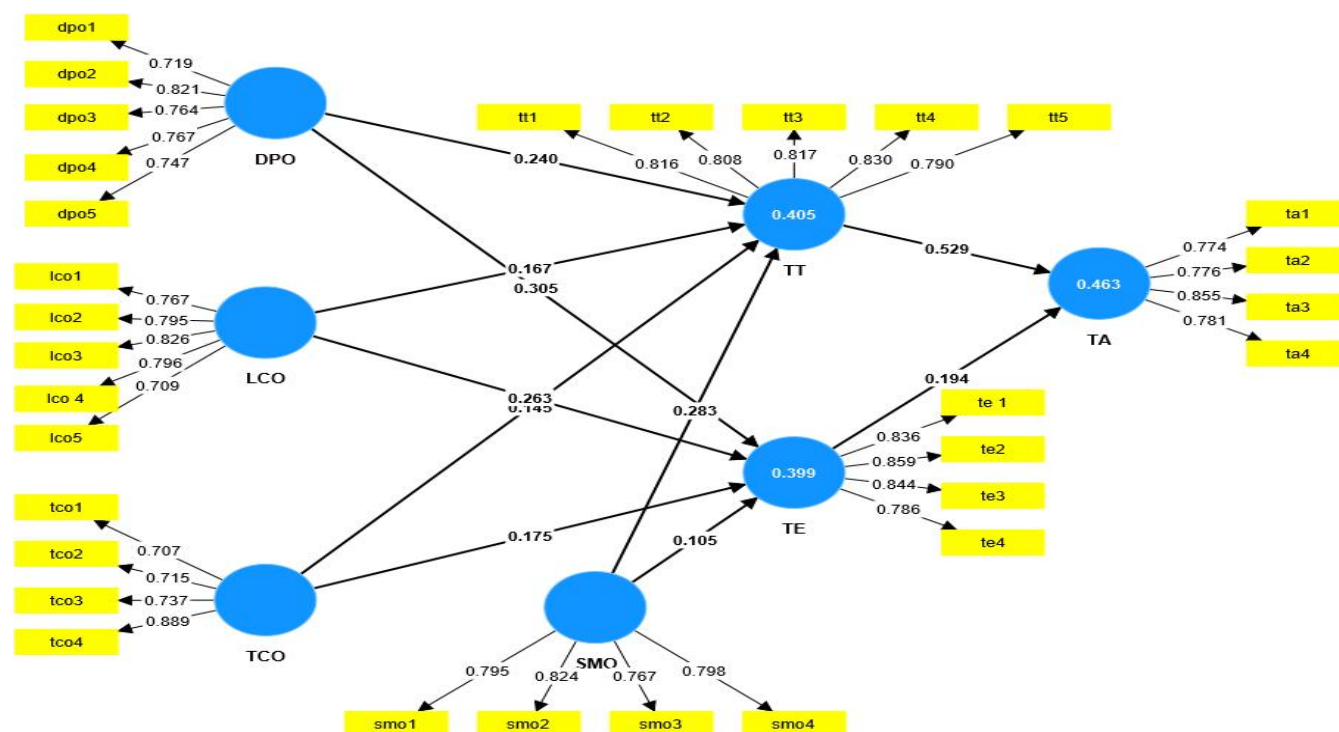


Figure 2 The structural model: DPO,didactic and pedagogical orientation;LCO,learner centered orienttaion;TCO,teacher centered

orientation;SMO,subject matter orientation;TT,technology transformation;TE,technology enrichment;TA,technology adoption.

The findings revealed that a teacher-centered perspective has a favourable influence on technology transformation and technology enrichment. A teacher-centered approach highlights the teacher's skills in guiding and encouraging student learning. Teachers effectively use technology into their instructional practises when they have a thorough awareness of technological tools and their pedagogical possibilities. Their knowledge allows them to choose relevant materials, create engaging learning experiences, and provide essential guidance to students, resulting in technology enrichment and transformation. Previous study has found a link between a teacher-centered orientation and a limited use of technology for knowledge and skill delivery (Martin & Vallance, 2008).

The learner-centered approach has a substantial positive impact on educational technology transformation and technology enrichment. Teachers use technology to create dynamic and immersive learning experiences by using a learner-centered approach. Teachers develop a sense of independence, self-direction, and creativity in their students by giving them control over their learning path and employing technology. According to earlier research, learner-centered orientation is a key predictor of teacher adoption of technology and student-centered technology use (Li et al., 2019; Liu et al., 2017). It was discovered to be the best predictor of technology use for learning enrichment and learning transformation. The finding emphasises the necessity of encouraging teachers to adopt a learner-centered approach to teaching.

Teachers' subject matter orientation has a positive effect on the technology transformation while it has insignificant influence on technology enrichment. Teachers having a strong subject matter orientation integrate technology into their classes successfully,

matching it with the information they teach. Teachers' technological literacy and proficiency, access to resources and professional development opportunities, the level of support provided by the school or educational institution, and teachers' overall pedagogical approach are all factors influencing subject matter orientation in technology enrichment. The orientation of subject matter experts had a direct impact on teacher use of technology to transmit content in a more appealing and effective manner. The previous research indicates that teacher fixation with subject matter information and subject matter proficiency may encourage teacher-centered delivery-focused technology use (Lai & Jin, 2021).

Technology enrichment and technology transformation, as mediating variables, play a critical role in positively influencing technology adoption in education. It contributes to the creation of an atmosphere in which teachers are more likely to embrace technology and harness its potential to improve teaching and learning by providing the essential groundwork, skills, and motivation.

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