

Received: 12.02.2025
Revised: 07.07.2025
Accepted: 14.07.2025
Published: 24.07.2025

A nexus of the relationships between learning approaches, epistemic beliefs and response to discordant supervisors' feedback among pre-service teachers

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Abstract

The study examined the correlation between pre-service teachers' epistemic beliefs, learning approaches and their response to discordant supervisors' feedback. The study is survey research that adopt a descriptive technique. Results found significant relationships between how pre-service teachers' respond to discordant feedback and each of the four epistemic beliefs type viz.: quick learning ($r=0.22$, $p=0.002$); omniscient authority ($r=0.25$, $p=0.001$), innate ability ($r=0.28$, $p=0.000$) and simple knowledge ($r=0.32$, $p=0.000$). No significant relationship was found between the pre-service teachers' response to discordant feedback and certain knowledge ($r= -0.011$ and $p=0.88$). The study also found that when the surface approach to learning was controlled, there was significant correlation between teachers' response to discordant feedback and deep approach to learning ($r=0.39$, $p=0.000$); while there was no significant relationship between their response to discordant feedback and surface approach ($r=0.041$, $p=0.578$) when deep approach was controlled. The study concluded on the need for the incorporation of deep approaches into teacher education programmes including reflective teaching practices and how to give and respond to feedback by supervisors and pre-service teachers respectively. The approaches should also consider the contexts of epistemic beliefs of the pre-service teachers.

Keywords: cognitive dissonance, epistemic beliefs, feedback, learning approaches, teacher education.

Introduction

Teaching practice is to teacher education what internship/industrial training is to students of administration, management and technology and what clinical posting and attachment is to medical/health sciences students. Teaching practice is usually a supervised activity of two blocks of six weeks period for teacher trainees in teacher education programmes in the university and one block of three months for teacher

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trainees in the Nigeria Certificate in Education (NCE) programmes or in education degree programmes in degree awarding Colleges of Education. Its principal aim is to enable pre-service teachers acquire pragmatic hands-on-training on how to teach. Yet, the merits of teaching practice to teacher trainees and to teacher education are grossly undermined by the lack of adequate feedback which could be obtained by spontaneous and subtle evaluations of the components, processes, products and outcomes of such teaching practice programmes. Such evaluation would not only reveal challenges in the planning, organizing, staffing, directing, coordinating and budgeting of the teaching practice but also challenges encountered by teacher trainees in reconciling, reducing or eliminating conflicting cognition between the theories and practice of teaching. Observations from teacher trainees from the teaching practice field reveal that one of the challenges encountered is that of cognitive dissonance enabled by incongruence in the feedback provided by supervisors to pre-service teachers during teaching practice. The few formal research conducted on cognitive dissonance experienced by teacher trainees in the Global South necessitates this study as the nature of the incongruence and resulting cognitive dissonance and how these teachers-in-training respond to them need be studied and reported. The incongruent feedback that initiated the cognitive dissonance as conceptualised in this study is not and should never be equated to negative feedback even though incongruent feedback is also expected to trigger actions targeted towards resolution. Incongruent feedback thus refers to supervisor-returned verbal or written remarks concerning the teaching skills, competences, behaviour and attitude of pre-service teachers that are different from previously and widely held pre-service teacher assumptions of these teaching outcomes.

Cognitive dissonance is a term that emerged from the 1950s and is credited to the Leon Festinger. Rex and Rangaiah (2017) explain that it is the mental stress that individuals experience when presented with two or more inconsistent opinions, contents, ideas, or values at the same time. It could also arise when people are faced with a new information that disagrees with their prior held views (Rex & Rangaiah, 2017). Some of the highlights of Festinger's theory according to Harmon-Jones (2012) included that: people are driven to reconcile contradictory beliefs; the degree of dissonance experienced depends on the significance of the contradictory and consistent beliefs; the degree of dissonance experienced in subjects is a function of initial beliefs and indicates a greater degree of attitude change for those who experience the most dissonance.

Teachers-in-training are most likely to enter into the teaching profession with certain beliefs about teaching which they may either be conscious or unconscious of. These entry beliefs emanate from their experiences as students; significant social relations and connections with professors, mentors and classmates and their thoughtful considerations upon critical incidents in their initial encounters with teaching (Jaimes, 2013). These beliefs are capable of making pre-service teachers experience cognitive dissonance as some of their prior held conceptions about learners and how to teach conflict with what they experience in the field (Eisenhardt, Besnoy & Steele, 2012). There

are many instances which could cause cognitive dissonances in trainees. For instance, a cognitive dissonance may be created when a trainee having been taught about the importance of motivation and reinforcement in classroom interactions is told by the supervisor to use a technique of motivation such as clapping sparingly most especially with adolescent learners. An elusive source of cognitive dissonance could be trainees having been taught to use (for the sake of time bound nature of objectives) “At the end of the lesson” in methodology classes were informed by the supervisor of his/her preference for “By the end of the lesson”. A rather confusing dissonance may be created where a supervisor having supervised the teaching sessions of a trainee and inspected the lesson plan gave the feedback that “You need to improve on the lesson content of your lesson plan”. No tangible feedback was provided when the trainee probed further by asking the supervisor “How can I improve on the lesson content of my lesson plan?”

Feedback literacy in teacher education

Feedback literacy has gain some ascendancy in the training and education of teachers in recent times (Putri & Yumarnamto, 2024, Abderahhim, 2022, de Kleijn, 2021, Istencioglu, 2022, The University of Melbourne, n.d.). This is not unconnected to the identification of feedback as one of the most significant factors that influence students’ learning and the responsibilities of teachers in the feedback process (Putri & Yumarnamto, 2024, Zhan, 2022). The term ‘teacher feedback literacy’ captures the exigencies of feedback literacy in the array of skills required of teachers. It refers to the knowledge, expertise and dispositions that are required to design effective feedback processes in ways that enable student uptake of feedback (Carless & Winston, 2020). There is a progression from what it means and how it could be supported through design to what students can do with the feedback information they receive (de Kleijn, 2021). Also, a survey of literature on teacher feedback literacy suggests the recognition of contexts including the level of education being taught in the required feedback literacy skills of teachers. Hence, the level of teacher feedback literacy skills required of higher education teachers would be different from that expected of teachers in high schools. Even within higher education, responsibilities could be anticipated to differentiate the feedback literacy expected of teachers (Boud & Dawson, 2023). Carless and Winston (2020) have also identified discipline based teacher feedback literacy. Teacher educators play important (facilitating) roles in ensuring that pre-service teachers develop feedback literacy through curriculum design, guidance and coaching (Carless & Boud, 2018, Carless, 2020). In fact, aspersions are cast on teacher educators when pre-service teachers do not develop competences in feedback literacy despite policy statements and reforms that support the feedback mechanism (Lam, 2019).

Supervisors are therefore expected to model feedback literacy to pre-service teachers during teaching practice in ways that promote the development of transformative teaching and other life skills through a dialogic communication process, within a safe and growth-oriented ambience that also engenders the high possibility of

pre-service teachers' use of such feedback process with their students in the future. In the process of such modelling, feedback from supervisors that are incongruent with the prior learning of pre-service teachers should have been resolved. Yet, this is observed to be far from being the norm with pre-service teachers seeking alternative sources for dissonant feedback resolution. The result of this oversight during the teaching practice supervision process could lead to the emergence of cognitive dissonance which might not have occurred in the wake of partnership approaches to feedback by supervisors and supervisees (Carless, Robert & Winstone, 2020).

Cognitive dissonances albeit referring to a negative state of non-alignment of what-ought-to-be with what-is, have been observed not to in themselves be inimical to the development of individuals. In fact, their existence has spurred the development of cognitive dissonance instructional strategies which has been used in diverse disciplines (McFalls & Cobb-Roberts, 2001; Gorski, 2009; Kivirinta, 2014; Corradi, Clarebout & Elen, 2015; Widarti, Permanasari, Mulyani, Rokhim & Habbidin, 2021). The challenge of cognitive dissonance for trainee teachers would be how to reduce or eliminate them with little or no support from supervisors who are supposedly the more knowledgeable others in the teaching practice process and as such expected to provide scaffolds which will aid the immediate reduction/elimination of the dissonance. Notwithstanding this situation, trainee teachers have been reported to evolve strategies for dealing with cognitive dissonances created by supervisors' feedback. These strategies include: "Work with Supervisor; Work with Others (with students, work with significant others who are at the same or higher level than the supervisor, work with supervisor in company with other students); Work with Self (interfacing with authors of pedagogy texts) and; Least resistance path (immediate acceptance without further clarifications)" (Oyetoro, Adeleke & Omotoso, 2019). Several other studies have focused on factors that may affect the development and reduction of cognitive dissonances and the use of cognitive dissonance reduction strategies by individuals in diverse contexts

Cultural and contextual factors that shape epistemic cognition

Epistemic cognition, which refers to individuals' beliefs about the nature of knowledge and knowing, is a dynamic construct shaped by a complex interplay of influences. How we come to know is not wholly a function of our biological makeup but a combination of both biological and ecological factors. Our knowledge of how we come to learn and understand the nature of knowledge itself is determined by cultural and contextual factors. Understanding these influences is essential for appreciating how people come to acquire, justify, and evaluate knowledge, particularly in diverse and pluralistic societies. Rami (2023) highlighted that "knowledge about the mind and human nature, or as human nature, is hopelessly bound to its uses within the matrix of ideological and epistemological needs of the locale in which it is practiced". Rami added that the epistemic setting in which Psychology, as a discipline for instance, "takes place will shape

what is worth observing, how it is to be studied, how the day is to be interpreted and the nature of the ultimate explanatory units”.

Contextual factors encompass the immediate educational, political, technological, and socio-economic environments that surround individuals and influence their epistemic development. One of the most influential contextual determinants is the educational system, including curriculum structure, assessment practices, and pedagogical approaches. For instance, educational settings that emphasize inquiry-based learning and critical discourse tend to foster more sophisticated epistemic beliefs, while rote learning environments often reinforce absolutist or simplistic conceptions of knowledge (Barzilai & Weinstock, 2015; Muis et al., 2016).

Disciplinary contexts also shape epistemic cognition, as different academic domains promote distinct epistemological norms. For example, knowledge in the sciences is often presented as evolving and tentative, whereas in disciplines like mathematics, knowledge is frequently framed as certain and authoritative (Hofer, 2000). Furthermore, technological and media environments play an increasingly significant role in shaping epistemic cognition. Access to the internet and digital platforms provides individuals with exposure to diverse knowledge claims but also increases the risk of epistemic fragmentation through echo chambers and misinformation (Chinn et al., 2014; Barzilai & Chinn, 2018). Critical digital literacy thus becomes essential in navigating contemporary knowledge landscapes.

Political and ideological contexts can either encourage or constrain epistemic development. Societies that promote open discourse, democratic participation, and academic freedom tend to facilitate critical evaluation of knowledge, whereas authoritarian regimes or ideologically rigid environments may discourage questioning and foster dogmatic epistemic orientations (Greene et al., 2016).

Finally, socio-economic factors such as access to quality education and resources significantly influence epistemic cognition. Individuals from marginalized or resource-constrained backgrounds may have limited opportunities for exposure to diverse knowledge sources and critical engagement with epistemic issues (Greene et al., 2016).

In contrast to contextual factors, cultural factors refer to the broader, historically embedded belief systems, social norms, and traditions that frame individuals' understanding of knowledge. Culture provides the interpretive lens through which individuals make sense of what knowledge is, who holds epistemic authority, and how knowledge is constructed or transmitted.

One prominent cultural influence is the degree of respect for authority and hierarchy within a society. In cultures that place high value on deference to elders, religious leaders, or institutional authorities, individuals may develop epistemic beliefs that prioritize knowledge from established sources over independent inquiry (Bendixen & Rule, 2004). Conversely, cultures that emphasize critical questioning and individual autonomy may promote more evaluativist or constructivist epistemic orientations (Hofer, 2008).

Collectivist versus individualist cultural orientations also shape epistemic cognition. Collectivist societies, which emphasize social harmony and group consensus, may foster epistemic beliefs that prioritize shared knowledge and discourage dissent. In contrast, individualist cultures may encourage personal inquiry, skepticism, and tolerance for epistemic uncertainty (Chan, et al., 2011).

Moreover, religious and traditional epistemologies significantly influence how knowledge is conceptualized. In many societies, religious beliefs provide foundational epistemic frameworks, with knowledge often viewed as divinely ordained or revealed, shaping attitudes towards alternative knowledge claims (Elby & Hammer, 2001; Chan, 2004). Similarly, in contexts where indigenous knowledge systems are prominent, knowledge may be viewed as relational, experiential, and deeply embedded in communal practices (Aikenhead & Michell, 2011).

Finally, globalization and cross-cultural encounters have introduced increasing epistemic pluralism, exposing individuals to competing knowledge systems. While this can foster epistemic flexibility and tolerance, it may also generate epistemic conflict and uncertainty (Barzilai & Chinn, 2018). Recognizing the interplay of these factors is essential for researchers and educators seeking to promote epistemic development, particularly in culturally diverse and politically complex environments.

Several studies have reported the dynamics of factors that influence (cognitive) dissonance. Rex and Rangaiah (2017) assessed sex differentials in eight different areas assessed by a dissonance questionnaire. The study reported that in the domains of personal adjustment, health, and wellness, specifically, females exhibited greater dissonance than males did in the domains of schooling and learning, subservience/dominance divisions, and external and impersonal domains. Ma (2017) however reported that there is no difference between women and men with respect to their methods of minimizing cognitive dissonance in relation to a partner's physical appearance. Drawing upon the notion of cognitive dissonance, Jermias (2001) postulated that individuals who are devoted to a specific path of action may lose sight of the advantages of the alternative that was abandoned. Lavergne and Pelletier (2015) established that autonomous motivation towards the environment was related with behaviour modification use and the avoidance of cognitive restructuring strategies both for dissonance reduction and compensation for counter-environmental actions. Controlled motivation towards the environment was related to the use of behaviour modification strategies for dissonance reduction however using cognitive restructuring techniques to reduce inconsistencies that are not dangerous. Yet few of these studies have studied cognitive dissonances among teachers-in-training during teaching practice sessions/periods, the strategies they use in reducing same when it arises and psychosocial factors that may affect these. Pre-service teachers face cognitive dissonance between their beliefs and their field experiences, according to Eisenhardt, Besnoy, and Steele (2012). This led to justified true beliefs on the relation between student knowledge

and effective teaching, held assumptions about students who were different from them, and the meanings these hold for teaching in the future.

While research on cognitive dissonances and use of strategies to reduce or eliminate them are ongoing, it is informative to study the relations that psychological constructs such as epistemic beliefs and learning approaches, which address the idiosyncrasies of individuals, may have with response to discordant supervisor feedback among would-be teachers. This becomes necessary when viewed from the backdrop that there are spirited attempts to curb the perennial problems of: dearth of clinical supervision for teacher trainees by supervisors and cooperating teachers; lack of positive disposition towards teaching as a profession by trainees even after teaching practice sessions and; the paucity of extrinsic motivation for prospective entrants into the teaching profession.

Gruber and Stamouli (2009) defined epistemic beliefs as notions of the characteristics of knowledge and how knowledge is acquired held by an individual. It refers to a person's beliefs about the nature of human knowledge such as its certainty and its conceptualization together with a person's beliefs about the criteria for and the process of knowing (Kienhues, 2013). A growing interest in personal epistemic beliefs has been observed in the area of educational research (Kienhues, 2013; Berding, Roff-Wittlake & Buschenlange, 2017). Hofer and Pintrich (1997) explained that one of the reasons for such interest in personal epistemology may be explained by the increasing evidence reporting the central role of epistemological beliefs in cognitive and meta-cognitive learning processes including the facilitation of educational reforms. A significant growth in studies that examined epistemic beliefs among teachers-in-training has been observed. Chai, Khine, and Teo (2006) surveyed 537 teachers-in-training in Singapore and found that, while they seemed to lean towards believing that knowledge is uncertain, pre-service teachers also tended to believe in experts. Pre-service teachers also emphasised learning effort. The study concluded that, based on the pre-service teachers' characteristics, Singaporean teacher educators might need to help them develop mature epistemic perspectives. The epistemic views of Korean pre-service teachers were studied by So, Lee, Roh, and Lee (2010). The study reported that only innate ability, certain knowledge, and quick learning were found to be reliable indicators of their epistemic views. Epistemological beliefs was also found by Jamshidi, Mahmoodi, Shiklar and Imanzadeh (2025) to have a significant positive relationship with teachers' professional competence.

A more recent study which employed the qualitative approach by Yildirim and Cirkinoglu Sekercioglu (2018) revealed three main belief dimensions. The first dimension indicated that the teacher education candidates are able to relate learning with effort, and they were reported to thought that innate ability would improve through effort. The majority of candidates believed that knowledge construction is a slow and relative process, according to the second dimension. The third dimension revealed that the majority of candidates held one of three distinct perspectives: knowledge changes absolutely, changes depending on the field, or does not change at all. Highlights of the

results also include the candidates' assertion that words have multiple meanings, that people interpret words according to their experiences, and that there is not a single correct solution to scientific problems because knowledge evolves over time and scientists suggest different approaches. The findings of these studies suggest that the epistemological beliefs held by pre-service teachers are not constant but may be expected to differ across culture and even change based on milieu. This present study may thus be seen as been necessary so as to establish what epistemological beliefs are associated with the use of dissonance reduction strategies use among teacher education candidates, most especially when such cognitive dissonance emanate from supervisors. Establishing the relationship among these variables may thus help to initiate appropriate intervention strategies that could make teacher education candidates use appropriate dissonance reduction strategies.

Cognitive dissonance and affective responses to evaluative feedback

Cognitive dissonance that emanates from evaluative feedback is often accompanied by a range of emotions, which are not merely incidental but integral to how individuals process and respond to such feedback. Harnessing these emotions as educative resources could constitute a positive and productive approach that fosters complex professional learning (Ince, 2012; Festinger, 1957; Pitt & Norton, 2016; Inge & Aino, 2012, Stark & Koslouski, 2022; Yoo & Carter, 2017). It could thus be reasonably expected and hypothesized that incongruent evaluative feedback from supervisors has the potential to elicit either positive or negative affective responses among supervised pre-service teachers. These affective responses, whether constructive or detrimental, significantly mediate the experience of cognitive dissonance and shape how it is navigated (Pitt & Norton, 2016; Boud & Molloy, 2013). In fact, the intensity of emotions experienced by learners during a learning activity according to Plass and Kalyuga (2019) could increase the cognitive load needed to process those emotions which could detract their ability to attend to and process the learning content.

The type and intensity of affective responses triggered by incongruent feedback are likely to influence both the magnitude of cognitive dissonance experienced and the likelihood of its resolution. For instance, a heightened negative affect may entrench defensiveness and hinder reflective learning, while a moderated, critically curious affect may promote engagement with the dissonance in ways that lead to cognitive and professional growth (Boud & Molloy, 2013; Pekrun, 2006). This conjecture assumes that although cognitive dissonance may be triggered by incongruent or even unexpected feedback from supervisors, the process of its resolution is neither automatic nor solely cognitive. Rather, it is deeply intertwined with pre-service teachers' affective orientations toward feedback and, crucially, supervisors' expertise in recognising, managing, and productively channelling the emotional responses elicited (Carless & Boud, 2018).

In this regard, Ince's (2012) findings are particularly instructive, highlighting the complex relationship between facilitators' ability to recognise and manage cognitive dissonance and factors such as their experience in the supervisory role, observational acuity, and personal commitment to critical reflection. These findings align with broader literature emphasising the emotional dimensions of feedback and their role in shaping professional identity development and transformative learning (Brookfield, 2017; Yang & Carless, 2013). Thus, far from being viewed as mere by-products, the affective responses accompanying cognitive dissonance are central to understanding and improving the feedback process within teacher education contexts.

Learning approaches are thought of as a component of the larger system that surrounds an educational event (Biggs, Kember & Leung, 2001). Learning approaches are generally seen as cognitive strategies. However, the emotions triggered by evaluative feedback can push pre-service teachers to adopt a particular learning approach as a means of resolving or coping with dissonance. Two approaches of deep approach and surface approach were identified by Biggs and associates. Approaches to learning are part of presage factors and determine learning outcomes. The use of a particular learning approach may be associated with the utilization of dissonant feedback reduction strategies more so since reduction in cognitive dissonance is a goal and a learning outcome for pre-service teachers during their field experience. The availability of studies that seek to examine the relationship between approaches to learning and the use of dissonance in supervisors' feedback is doubtful thus establishing the imperatives for this study.

Suffice it to state that the researcher in conjunction with other researchers, Oyetoro, Adesina and Eyebiokin (2020) had earlier published a title with similar variables using the discriminant function analysis. The findings of the study revealed a function with positive coefficients for deep approach, simple knowledge, surface approach, omniscient authority and certain knowledge while innate ability and quick learning had negative coefficients. The revealed function was also reported to be maximised for 77% of pre-service teachers with high dissonance reduction strategy use and; 36.7% and 67.6% of pre-service teachers with moderate and low dissonance reduction strategy use respectively. Empirical evidence about response pattern to cognitive dissonance and its relationship with predictive factors such as epistemic beliefs and learning approaches is needed so as to guide pragmatic efforts at tackling its relative lasting effect on pre-service teachers. Such empirical evidence would benefit different stakeholders in (teacher) education in different ways. For instance, supervisors would be provided with empirical information on the pattern of response pre-service teachers use to respond to discordant feedback and would be encouraged to utilize collaborative and reflective approaches with the pre-service teachers. Teacher educators could use the findings from the study to modify their micro-teaching practice sessions, teaching methods classes and orientation programmes. It could also aid them to do an overhaul of the teacher education programme to include incorporation of strategies that would align with the pre-service

teachers' personal epistemic beliefs and learning approaches. The pre-service teachers could be motivated to (dis)engage their distinct epistemic beliefs and learning approaches in responding to the discrepancies in held cognition arising from incongruent supervisor feedback during teaching practice.

The overall aim of the study was to establish the relationship between epistemic beliefs, learning approaches and the use of strategies to reduce cognitive dissonance arising from dissonant supervisors' feedback among pre-service teachers in Obafemi Awolowo University, Southwestern Nigeria.

Research Objectives

This study specifically:

1. established the relationship between each of the five epistemological beliefs and the response pattern of pre-service teachers to discordant supervisor feedback; and
2. examined the relationship between each of the learning approaches (when the other one is controlled for) and the response pattern of pre-service teachers to discordant supervisor feedback.

Research Hypotheses

The following two research hypotheses were therefore raised for this study:

1. There will be no significant relationship between each of the epistemological beliefs (quick learning, omniscient authority, innate ability, simple knowledge and certain knowledge) and the response pattern of pre-service teachers to discordant supervisor feedback and;
2. There will be no significant relationship between each of the learning approaches (deep and surface approach) and the response pattern of pre-service teachers to discordant supervisor feedback.

Methods

Design

The study is a survey research that adopted the descriptive approach.

Population

The population consisted of 902 pre-service teachers who received lectures and sat for examinations in an intermediate teaching methodology course (ASE 202: Curriculum and Instruction) at the Obafemi Awolowo University during 2014/2015 and 2015/2016 Academic Sessions. These candidates also observed the 2016/2017 teaching practice exercise.

Sample and sample technique

The sample for the study consists of 200 pre-service teachers in their penultimate and final years of their teacher education programme selected using simple random sampling technique. One hundred and ninety two (192) of the selected sample representing a 96% Response Rate (RR) which is adequate enough for the generalisation of the findings of this study. Eighty-five males (85) and 107 females make up the sample profile. Of the students, 99 were in their penultimate class (third year), and ninety-three were in their final class (fourth year). The departments representing the students' backgrounds are Arts and Social Science (143), Science and Technology (33), and Kinesiology, Health Education & Recreation (16). The mean of the age of the respondents is 22.73 years old with a 3.32 standard deviation.

Instrumentation

The three instruments that were used to collect the data used for the study were: “*Epistemological Beliefs Inventory (EBI)*”, the *Revised Study Process Questionnaire (R-SPQ-2F)*, and *Dissonance in Supervisors' Feedback Reduction Strategies Use Questionnaire (DSFR-Q)*”.

Epistemological Beliefs Inventory (EBI)

The Epistemological Belief Inventory developed by Schraw, Bendixen and Dunkle (2002) was used for the study. The EBI is five factors 28-item 5 point Likert scale questionnaire. The five factors as proposed by Schommer (1990) are Simple Knowledge (7 items), Certain Knowledge (5 items), Omniscient Authority (5 items), Innate Ability (6 items), and Quick Learning (5 items). Pre-service teachers responded to the items with a 1 corresponding to “Strongly disagree” and 5 corresponding to “Strongly Agree”. Items 2, 6, 19, 24 and 28 were reversely scored. Cronbach Alpha values for the items in this inventory have reportedly ranged from 0.58 to 0.68. To assess the predictive validity of the EBI, Schraw et al. (2002) compared the total epistemological belief score with a reading comprehension test. Cronbach Alpha value obtained for the present study was 0.83.

Dissonance in Supervisors' Feedback Reduction Strategies Use Questionnaire (DSFR-Q)

“Dissonance in Supervisors' Feedback Reduction Strategies Use Questionnaire” (DSFR-Q) which was developed by Oyetoro, Adeleke and Omoteso (2019) comprised 14 items on the mutually exclusive courses of action trainee teachers may take when they are given feedback that are in not in consonance with what they have learnt in teaching methodology classes. The response scale was a 6-point Likert scale, which ranges from 0 (Not likely) to 5 (Most likely). Sample items from the questionnaire include: “*try to see how different facts and ideas fit together*” and “*discuss the area of conflict with an expert in the field of teacher education*”. For the current investigation, 0.85 Cronbach alpha value which was thought to be suitable for this study was established.

The Revised Two Factor Study Process Questionnaire (R-SPQ-2F)

Biggs, Kember & Leung (2001) created this questionnaire to help teachers assess both their own methods of teaching and their students' learning approaches. Only surface and deep approaches are evaluated by the instrument. It contained five items for each of the surface and deep motive and strategy scales, with ten items for each approach. The unidimensionality of the items for each of the four subscales has been established. Cronbach Alpha values of 0.64 and 0.73 were established for surface and deep approach respectively by the Biggs *et al.* Cronbach Alpha values of 0.86 and 0.76 were established for surface and deep approaches respectively for the present study.

Procedure for collecting data

The targeted population were approached at their assigned schools for the teaching practice exercise. They were given an explanation of the study's goal before being given the questionnaire. The completed surveys were promptly gathered.

Method of analysing data

Bivariate correlation statistics was used to analyse data gathered from the respondents.

Results

Research Hypothesis One: There will be no significant relationship between each of the epistemic beliefs (quick learning, omniscient authority, innate ability, simple knowledge and certain knowledge) and the response pattern of pre-service teachers to discordant supervisor feedback.

In order to determine if there is significant relationship between each of the teachers-in-training personal epistemic beliefs and their pattern of response to discordant supervisor feedback, the correlation of the their scores on the sub-scales of the epistemic beliefs scale with the response pattern to discordant supervisor feedback instrument was obtained. The results are displayed in Table 1.

Table 1

Bivariate correlational analysis of epistemic beliefs and response pattern of pre-service teachers to discordant supervisor feedback

		Quick Learning	Certain Knowledge	Omniscient Authority	Innate Ability	Simple knowledge
DSFR-Q	R	0.22	-0.011	0.25	0.28	0.32
	Sig. (2-tailed)	0.002	0.88	0.001	0.000	0.000
	R ²	0.049	0.00012	0.06	0.08	0.099
	Ranking	4	5	3	2	1

The results in Table 1 depicts that quick learning has a positive low correlation index of 0.22 ($p=0.002$) with response pattern of pre-service teachers to discordant supervisor feedback. The correlation index of omniscient authority with the use of the strategies is 0.25 ($p=0.001$). Innate ability has a positive low correlation index of 0.28 ($p=0.000$) while simple knowledge has a moderate positive correlation index of 0.32 ($p=0.000$).

Summarily, the reported correlation indices for four epistemic beliefs, namely quick learning, omniscient authority, innate ability and simple knowledge, with the pre-service teachers' use of strategies to reduce cognitive dissonance effect arising from supervisors' dissonant feedback are significant at 0.05 significance level. The results however show that only certain knowledge has a very low negative correlation index of -0.011 which is not significant at 0.05 significance level ($p = 0.88$). Further analysis using coefficient of determination (calculated by obtaining the square of the correlation coefficient) depict that simple knowledge account for 9.9% variance in the response pattern of pre-service teachers to discordant supervisor feedback; innate ability account for 8% variance; omniscient authority account for 6% variance while quick learning account for 4.9% variance. Certain knowledge account for a negligible variance of 0.012% in the response pattern.

Research Hypothesis Two: There will be no significant relationship between each of the learning approaches (deep and surface approach) and the response pattern of pre-service teachers to discordant supervisor feedback.

The choice of accept or reject decision for this null hypothesis was determined by taking the correlations between each of the learning approaches and the response pattern of pre-service teachers to discordant supervisor feedback when either of the strategies was controlled for were obtained. The results are as shown in Table 2.

Table 2

Partial correlational analysis of learning approaches with response pattern of pre-service teachers to discordant supervisor feedback

Control Variables		Correlations			
			DSFR-Q	Deep Approach	Surface Approach
-none ^a	DSFR-Q	r	1.000	.46	.26
		<i>p</i> (2-tailed)	.	.000	.000
		df	0	190	190
	Deep Approach	r	.46	1.000	.49
		<i>p</i> (2-tailed)	.000	.	.000
		df	190	0	190
	Surface Approach	r	.26	.49	1.000
		<i>p</i> (2-tailed)	.000	.000	.
		df	190	190	0
Surface Approach	DSFR-Q	r	1.000	.39	
		<i>p</i> (2-tailed)	.	.000	
		df	0	189	
	Deep Approach	r	.39	1.000	
		<i>p</i> (2-tailed)	.000	.	
		df	189	0	
Deep Approach	DSFR-Q	r	1.000		.041
		<i>p</i> (2-tailed)	.		.58
		df	0		189
	Surface Approach	r	.041		1.000
		<i>p</i> (2-tailed)	.58		.
		df	189		0

Table 2 revealed that when surface approach was controlled for, the correlation between deep approach and the response pattern of pre-service teachers to discordant supervisor feedback is moderate and positive and is significant at the 0.05 significance level ($r= 0.39, p= 0.000$). On the other hand, when the deep approach was controlled for, the correlation between surface approach and the response pattern of pre-service teachers to discordant supervisor feedback is very low though positive and is not significant at 0.05 significance level ($r= 0.041, p= 0.58$).

Discussion of findings

The finding of this study has established that four of the epistemic beliefs are related to the response pattern of pre-service teachers to discordant supervisor feedback. The remaining dimension that is not related to their response pattern is Certain Knowledge. The order of the correlation is Simple Knowledge, Innate Ability, Omniscient Authority, Quick Learning and Certain Knowledge. Those who believe in Simple Knowledge believe in the structure of knowledge, the very presence of dissonance could be explained to make them want to seek stability of the tensed cognitive structure almost immediately, hence the high correlation. Innate Ability belief with believe in the stability of knowledge has the second highest coefficient of determination. The low but positive correlation obtained could be explained on the basis that since reduction of dissonance is a goal which will help teacher trainees maximize the opportunities proffered by the teaching practice experience, those with this belief seek to maintain the stability in their knowledge through the use of the strategies. The other important beliefs are omniscient authority which emphasizes the source of knowledge and quick learning which emphasizes the speed in learning. The order of the relationship could be said to depict the importance of each of the personal epistemic beliefs in the provision of interpretive framework that could guide pre-service teachers' practice during the teaching practice period.

The inverse relationship between Certain knowledge and the response pattern to dissonance in supervisor feedback is reasonably expected. The assumptions of this nature of knowledge include that knowledge is absolute and does not change, truth is black and white, knowledge is acquired as established facts and not actively constructed, experts possess ultimate truth and, doubt or questioning is unnecessary (ChatGPT, 2025). Therefore adherents of certain knowledge are most likely not to engage in any knowledge construction process that would enable them query the incongruent supervisor feedback. The findings of this study has once again reiterated the fluidity of pre-service teachers' epistemic beliefs as alluded to by Yildirim and Cirkinoglu Sekercioglu (2018) and the need to further study it. Also, the contextual undertone of the relationship between epistemic beliefs of the pre-service teachers' and their responses to dissonant supervisor feedback could be brought to explain the present findings. For instance, it is both disciplinary (Hofer, 2000) and indigenous (Aikenhead & Michell, 2011) epistemologies that teachers and teacher educators cum supervisors as adults and professionals are to be accorded

respect such that a query of their feedback by students and pre-service teachers could be deduced as being disrespectful and antisocial.

The findings from this study indicated that when surface approach was controlled for, a significant moderate positive correlation exists between deep approach and teacher trainees' response pattern to discordant supervisor feedback. A non-significant low correlation was established between surface approach and the response pattern of pre-service teachers to discordant supervisor feedback when the deep approach to learning was controlled for. The present finding has yet corroborated major findings where deep learning has been associated with the tendencies to obtaining high academic achievement and getting meaning and intent within the scope of an activity or experience (Entwhistle, Tait & McCune, 2000; Cano, 2007). Hence, those who use deep learning approach are likely to use dissonance reduction strategies which would make them more knowledgeable in the dissonant cognition hence improving their capability to become better teachers.

Conclusion

The conclusion from this study is that each dimension of epistemic beliefs is independent from each other and as such pre-service teachers should be trained and encouraged to use dissonance reduction strategies as often as dissonance in cognition, beliefs or attitude that counter their previously held knowledge, cognition, beliefs or attitude occur. In addition to this, it is important for all stakeholders to understand the efficacy of deep approach to learning in helping pre-service teachers navigate the complexities of dissonance inducing beliefs, cognition, attitudes during teaching practice.

Implications

Student-teachers should therefore be aware of the possibilities and various knowledge areas of dissonance through supervisor feedback and the dissonance reduction approaches and strategies they could utilize to counteract them. These student-teachers should be made to be aware of the benefits of adopting a deep approach to learning and developing teaching competences. Teacher educators should also value and utilize deep approach to facilitating teaching practice orientation programmes, teaching methods classes and micro-teaching so that pre-service teachers could benefit maximally from their teaching practice experience and from their practice teaching when they subsequently qualify for and are employed as professional teachers. Supervisors during orientation programmes should be encouraged to be open minded and adopt a collaborative stance in the course of performing their duties as supervisors. This study also supports the need for the adoption and incorporation of reflective practices into teaching practice exercises.

Also, there is the need for including supervisor training as part of the teaching practice implementation cycle. This will enable deep-seated issues of supervision styles

and leadership, recent thinking and knowledge in pedagogical practices and handling cognitive dissonance be discussed. Such training forum could also serve as an institutional feedback mechanism which is missing in the teaching practice cycle at the time of this research report.

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