

STUDENTS' PERCEPTION OF UNIVERSITY TEACHERS' INSTRUCTIONAL INTELLIGENCE: A GENDER AND INSTITUTIONAL-SECTOR COMPARISON IN KHYBER PAKHTUNKHWA, PAKISTAN

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Abstract

This study focused on measuring university students' perceptions regarding the instructional intelligence of their lecturers in two universities in Khyber Pakhtunkhwa, Pakistan: public and private, and checked whether there was any difference in the perception based on the institutional-sector and gender. The theoretical foundation of the concept of Instructional Intelligence was based on Bennett's (2010) instructional-intelligence framework and Tomlinson's (2001) theory of differentiated instruction. The construct of instructional intelligence was evaluated through a 30-item Likert-scale questionnaire that assessed six sub-constructs ($KMO = .897$, Bartlett's $\chi^2 (435) = 7991.42$, $p < .001$; Cronbach's $\alpha = .936$). A total number of 400 students (250 from public, 150 from private) were used through multistage stratified random sampling. The statistical analysis of data was done in SPSS through descriptive statistics and independent-samples t-tests. The overall mean instructional intelligence score was 73.49 ($SD = 25.11$) indicating a below-neutral, moderately unfavorable perception. The mean scores of the public sector learners were slightly higher ($M = 78.54$) compared to the private sector learners' mean score ($M = 71.81$), but the difference was not significant statistically, $t (398) = .672$, $p = .502$, $d \approx 0.28$. Gender did not prove significant either (male $M = 72.68$; female $M = 73.28$; $t (398) = -0.24$, $p = .808$). The findings pointed out toward the need for a universal competency-based approach in professional development training for all teachers and with classroom management as a focus area. The implications of these findings are relevant to both teacher trainers and quality assurance policies within the higher education in Pakistan.

Keywords: instructional intelligence; differentiated instruction; higher education; gender differences; public and private universities.

1. INTRODUCTION

In the context of higher education, teaching is a multifaceted and complex activity, which calls for flexible adaptation by the instructor based on different learner characteristics, dispositions and knowledge. It starts from the understanding of the learner followed by the formulation of instructional decisions. Students vary in their understanding and attitude towards assigned tasks, and their cultural background, generational background, and their disciplinary background define their world perception, the way they solve the problems and build their knowledge based on the previous experience (Tomlinson, 2001).

Differentiated instruction can be considered one of the most developed answers to the diversity problem. This approach is based on the idea that each student learns better when educators change their approaches, depending on the students' readiness to learn, their interest and the learning preferences (Subban, 2006; Tomlinson, 2000; Tomlinson, 2005). Differentiation aims at making the maximum use of students' learning potential through using various methods, but not a single one (Tomlinson, 2000; Tomlinson, 2004). According to Tomlinson (2000),

differentiation is not simply one of many instructional strategies, but rather a whole philosophy of teaching and learning in which the classroom is seen as the meeting ground of the art and science of teaching.

The combination of art and science that characterizes the concept of differentiated instruction is embodied best, perhaps, in Barrie Bennett's theory of instructional intelligence (Bennett, 2010; Bennett & Rolheiser, 2001; Fullan, 2002), which he developed after more than three decades of experience as a teacher, professor and researcher. According to Bennett, instructional intelligence involves the synthesis of content knowledge, assessment literacy, understanding of how students learn, variety of instructional strategies, and the ability to effect personal and systemic change. The "science" aspect of instructional intelligence consists of intentional, evidence-based selection of pedagogical strategies and understanding their impact on students' learning; the "art" aspect of instructional intelligence is about the innovative and context-specific combination and sequencing of strategies in order to help a certain group of learners. According to Bennett (2010), differentiating instruction to cater to varied student needs makes teachers both more scientific and more artistic in what they do. In the Pakistani higher education scenario where there is a growing trend among university instructors to cater to heterogeneous academic needs of their students in both public- and private-sector universities, the implementation of instructional intelligence and how it varies systematically on the basis of institutional sectors as well as gender of instructor and learner has been largely ignored in an empirical sense. In previous Pakistan-based literature on gender differences in the context of teaching at higher education level, it has been observed that while some researchers have found differences in gendered interaction style but not in the domain of instructional skills (Malik et al., 2022), some others have found differences in gendered skills related to teaching (Kalim & Bibi, 2024).

This research fills this gap by analyzing the perceptions of students regarding instructional intelligence of instructors in one public sector and one Private Sector University in Khyber Pakhtunkhwa, Pakistan, and determining whether there are significant differences between perceptions in different sectors and in genders in general and on six theoretical sub-constructs of instructional intelligence.

1.1 Theoretical Framework

This study is based on two theoretical frameworks. Differentiated instruction theory proposed by Tomlinson (2001, 2005) explains the significance of adapting teaching in response to learner diversity, whereas the instructional intelligence theory put forward by Bennett (2010) is employed for its measurement. Bennett (2010) proposes six sub-constructs of instructional intelligence, all of which are included in this study as a scale dimension. (a) Instructional Tactics-specific, readily implemented teaching techniques like think-pair-share and graphic organizers; (b) Instructional Skills are the real time teacher's actions such as questioning, waiting and modelling; (c) Instructional Organizers, a comprehensive structure used as a guide when planning lessons, for instance, Bloom's taxonomy; (d) Instructional Strategies is relatively more complicated frameworks like concept formation or cooperative structures; (e) Instructional Concepts in the classroom context like motivation, respect and active participation that are essential for the class' smooth operation; and (f) Classroom Management is the organization and discipline systems that help maintain the learning environment. Thus, altogether, these components form instructional intelligence as a multi-dimensional and not a global characteristic, which accounts for the sub-component approach to instructional intelligence presented in Section 4.

1.2 Objectives of the Study

The objectives are to:

- Investigate students' perception about instructional intelligence of university teachers
- Compare university instructors' perceived levels of instructional intelligence by gender
- Evaluate university instructors' instructional intelligence by sector

1.3 Research Questions

- What is the level of instructional intelligence of university teachers?
- What is the gender gap in university instructors' instructional intelligence?
- What distinguishes instructors at private and public universities in terms of their instructional intelligence?

2. LITERATURE REVIEW

The literature on instructional intelligence and differentiated instruction coalesces around the idea that responsive and learner-centred teaching leads to more equal and efficient educational results compared to uniform and universal instruction (Subban, 2006; Tomlinson, 2000, 2001). According to Tomlinson (2005), differentiated instruction is an approach to teaching which is based on the assumption that learners benefit most when educators take proactive steps towards addressing differences in readiness, interests, and learner profiles instead of treating classroom as an educationally homogeneous group. Subban (2006) also supports the idea of differentiating instruction as she claims

that classrooms where educators consider individual variances have more engaged and inclusive atmosphere in comparison with classrooms where a single approach to instruction prevails.

In this regard, the notion of instructional intelligence developed by (Bennett, 2010; Bennett & Rolheiser, 2001) adds to the current body of literature. For Fullan (2002) discussing instructional and systemic changes in the context of education, such instructional competence is part of a broader culture of change – where teachers can grow and maintain their instructional intelligence through continuous professional development in institutions of learning which do not view teaching skills as immutable and predetermined by the moment of hiring.

Classroom management, one of the six sub-constructs discussed in this study, also has an extensive body of evidence. In fact, Marzano et al. (2003) synthesised a vast array of classroom-management research data and found out that the level of classroom management has more impact on student learning than any specific form of instruction – hence explaining the reason behind the fact that classroom management was the only sub-construct with the statistical sector difference in the current study. Overall, the body of literature on teacher quality views instructional competence, including classroom management, as one of the best school-based predictors of student success (Darling-Hammond, 2000). Empirical evidence on gender differences with respect to teaching quality in the Pakistani higher education system provides an interesting yet mixed picture.

In their quantitative analysis of interactions between students and teachers in universities, Malik et al. (2022) found that there were statistically significant gender differences in terms of the instructor's attitude and ability to hold the attention of his or her class, but no statistically significant gender difference in terms of the instructor's competence or command of subject knowledge. In other words, gender differences in teaching can become more visible in terms of interaction rather than underlying teaching competence. Likewise, Kalim and Bibi (2024) in their research into the issue of teaching competencies of the Pakistani public school teachers revealed gender differences within specific competency domains (e.g., theory vs. laboratory classes), but not in terms of overall competency levels that are generally equal among male and female teachers.

However, literature on comparative sector-based analysis of the quality of instruction in Pakistan is still scarce, although quality assurance policies make governance, evidence, and continuous improvement issues that require joint efforts from the side of both public and private higher education institutions. The current research makes an addition to this literature through direct comparison of perception of instructional intelligence of both public and private universities in the same province with the help of a common theoretical framework.

3. RESEARCH METHODOLOGY

3.1 Research Design

For the current research, the cross-sectional and comparative survey design has been chosen (Creswell & Creswell, 2018; Fraenkel et al., 2019). It was suitable for description of the level of a construct in the population and the comparison of differences in groups on certain demographic variables (sector and gender) without any manipulation of variables.

3.2 Population

The population included all the students registered at two universities in Khyber Pakhtunkhwa, Pakistan, namely, Abdul Wali Khan University Mardan (AWKUM) which is a university in the public sector with 12,345 students as its enrolment and Northern University which is a university in the private sector with 1,500 students as its enrolment.

3.3 Sample and Sampling Technique

A multi-stage stratified random sampling technique was adopted. In the first stage, one public sector university (AWKUM) and one private sector university (Northern University) were selected purposefully to represent the two institutional sectors. In the second stage, students at each of the two universities were stratified by sectors, and simple random sampling was done whereby 250 students were selected from the public sector university and 150 from the private sector university to form a sample size of 400 respondents. The sample size distribution between the two strata follows the recommended minimum sample size of this kind of population (Krejcie & Morgan, 1970). All 400 questionnaires distributed were retrieved for analysis (response rate = 100%).

3.4 Research Instrument

Data were gathered using a self-made, structured questionnaire made up of 30 items, arranged into six sub-scales in accordance with the six dimensions of instructional intelligence identified by Bennett (2010): instructional tactics, instructional skills, instructional organizers, instructional strategies, instructional concepts, and classroom management. Each item was rated on a five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). Content of each item was based on the theoretical definition of the sub-constructs in Bennett (2010), and Tomlinson (2001).

The construct validity of the instrument was determined by employing the Kaiser-Meyer-Olkin measure of sampling adequacy and Bartlett's test of sphericity. The values obtained were KMO = .897, and Bartlett's $\chi^2(435) = 7991.42$, $p < .001$, which showed that the items were suitable for factor analysis. The internal consistency reliability of the complete 30-item scale was excellent, with a Cronbach's $\alpha = .936$ ($\alpha = .943$ for standardized items).

3.5 Data Collection Procedure

The questionnaires were distributed personally to selected students from the two universities. The respondents were given information on the objectives of the study and assured that their answers will be used solely for research purposes.

3.6 Methods of Data Analysis

Data analysis was carried out using SPSS (version 17) and proceeded in two steps. Firstly, the overall score of the instructional intelligence construct and its six sub-constructs, separately for sector and for gender, were subject to computations of the descriptive statistics (mean and standard deviation). Secondly, independent-samples t-test was applied in order to check the existence of the significant mean differences between sectors and genders on the overall scale and each sub-construct. The significance level for the t-test was set at a commonly accepted value of $\alpha = .05$. The effect size was also computed using the reported means and standard deviations of the scale and sub-constructs (Cohen, 1988; Field, 2018).

3.7 Ethical Issues

Respondent participation was voluntary and the anonymity of the respondents was protected during all phases of data collection, entry and reporting. No personal identifiers were collected.

4. FINDINGS

4.1 Mean Score of Perceived Instructional Intelligence of University Teachers

For the entire sample ($N = 400$), the mean score of perceived instructional intelligence of university teachers was 73.49 ($SD = 25.11$). This implies that there is a below-neutral, moderately unfavorable perception of instructional intelligence of university teachers among sampled students.

Table 1. Descriptive statistics of overall perceived instructional intelligence.

Variable	N	Mean	SD
Overall Instructional Intelligence	400	73.49	25.11

4.2 Comparison of Instructional Intelligence by Sector

The students in the public-sector university had a relatively higher mean score for instructional intelligence ($M = 78.54$, $SD = 25.11$) compared to students in the private-sector university ($M = 71.81$, $SD = 22.57$). Based on the mean scores and standard deviations obtained, the pooled standard deviation would be 24.19 and the effect size Cohen's $d \approx 0.28$, which is considered a small effect (Cohen, 1988). This means that while the mean of the public-sector students was relatively high, the effect size between the sectors was relatively small.

Table 2. Comparison of overall instructional intelligence sector-wise (independent-samples t-test).

Sector	N	Mean	SD	t	df	P
Public(AWKUM)	250	78.54	25.11	0.67	398	.502
Private(Northern)	150	71.81	22.57			

4.3 Sub-construct Comparative Analysis by Sector

Table 3 illustrates the pattern of sector difference in six sub-constructs. The students of the public sector recorded higher mean scores on instructional organisers, instructional concepts and classroom management as compared to students in the private sector, while the two sectors were close to each other on instructional tactics, instructional skills and instructional strategies. Standard deviation was high on instructional skills sub-construct for private sector respondents as compared to the public sector respondents, indicating variability in responses. Of the six sub-constructs, the independent-samples t-test resulted in a significant mean difference only for classroom management sub-construct in favor of the public sector; while for the rest of the five sub-constructs no statistically significant differences existed.

Table 3. Comparison of sub-constructs of instructional intelligence sector-wise (independent-samples t-tests).

Sub Construct	Sector	Mean	SD	t	df	P
Instructional tactics	Public	11.33	4.94	-0.395	398	.693
	Private	11.53	4.92			
Instructional skills	Public	11.32	4.86	-0.731	398	.465
	Private	11.69	5.16			
Instructional organizer	Public	12.04	5.95	0.765	398	.445
	Private	11.60	4.87			
Instructional Strategies	Public	11.89	5.14	0.168	398	.867
	Private	11.80	4.88			
Instructional Concepts	Public	12.35	5.33	0.95	398	.34
	Private	11.83	5.251			
Classroom Management	Public	14.58	6.066	2.10	398	.036
	Private	13.36	5.357			

4.4 Gender-wise Comparison of Instructional Intelligence

Respondents who identified themselves as females gave a marginally higher overall mean score ($M = 73.28$, $SD = 22.90$) compared to males ($M = 72.68$, $SD = 25.10$), although the latter had more variability in their responses.

Gender	Mean	SD	t	df	p
Male	72.68	25.10	-0.24	398	.808
Female	73.28	22.90			

Table 4. Comparison of overall instructional intelligence based on gender (Independent-Samples t-test). The value of t, df, and p is relevant for the overall Male vs. Female comparison and will be centered across both rows.

5. DISCUSSION

The objectives of this study were to evaluate the perceptions of university students concerning instructional intelligence of university teachers and whether these perceptions differ in terms of institution sector and gender. The following three key findings need to be addressed within the context of theory and previous literature.

First, the mean score for instructional intelligence ($M = 73.49$ on a scale in which the theoretical midpoint would be 90, taking into account 30 items on a five-point scale) indicates that the sample students have a below-neutral, moderately unfavorable perception rather than the highly positive perception. Considering Bennett's (2010) model, this finding suggests that although both public-sector and private-sector university teachers are perceived to be fairly capable in terms of all six dimensions of instructional intelligence, there is still much room for improvement, especially if instructional intelligence is considered as Fullan (2002) views teaching expertise—as something that develops throughout professional learning.

Second, the comparison of the two sectors has shown that, although public-sector students perceive instructional intelligence of their teachers more highly than do private-sector students in numeric terms, the overall difference in perception corresponds to a very small effect size ($d \approx 0.28$). The above trend is quite consistent with what Tomlinson (2000) has suggested regarding the fact that differentiated, learner responsive teaching is more of a professional orientation and not an institutional characteristic. The one sub-construct that made any kind of difference was classroom management, and this can be explained by the possible structural differences in the two schools that have not been considered in this study.

Thirdly, the lack of gender difference in overall instructional intelligence is consistent with the findings of Malik et al. (2022) regarding the instructional competence of male and female university teachers in Pakistan.

The findings are somewhat in contradiction with Kalim & Bibi (2024), who identified differences in gendered performance of school teachers on a domain-specific level (e.g., theoretically oriented vs. laboratory instruction); the failure to find significant differences in this regard on the sub-construct level suggests that any differences in the teachers' practice in terms of instructional intelligence were insignificant from the standpoint of students' perception. Thus, the two studies combined suggest that gender differences, to the extent they are present, are likely to be apparent

in domain-specific or interactional measures rather than in the overall instructional intelligence rating. This tendency is similar to that observed in research into Pakistani teachers' readiness, according to which gender differences appear to be more pronounced in specific measures of readiness than in the global measures of competence (Amjad et al., 2021).

In sum, the above findings provide additional support for one of the key assertions of the instructional-intelligence and differentiated instruction research, according to which instructional quality depends on the individual practice and the support structures within the organization rather than demographic characteristics (such as gender or sector) (Tomlinson, 2001; Bennett, 2010). This shifts the implication of the study in practice from interventions that target a particular sector or gender group to universal competency-based professional development, with classroom management being the only area in which an intervention targeting a particular sector can be empirically justified based on the data presented here.

6. Limitations of the Study

- The current study used an instrument that was developed for this purpose; although the items of this instrument were based on an existing theoretical foundation (Bennett, 2010), the instrument's content validity and reliability should be reported in full (refer to section 3.4).
- Data were obtained from two universities within one province (Khyber Pakhtunkhwa); hence, the results of the study are limited to the context of other regions of Pakistan or other countries.
- The study used a cross-sectional design, which means that the study captured perceptions at a single point in time and no causal relationships between the studied variables could be determined.

7. CONCLUSION

This research has examined students' perceptions of the instructional intelligence of university teachers working in one public-sector and one private-sector university located in Khyber Pakhtunkhwa province, Pakistan. The purpose of the study was to examine if there were any significant differences between the two sectors and also among genders in their perceptions of instructional intelligence. As an outcome of the analysis conducted, the mean rating of instructional intelligence was found to be below-neutral, moderately unfavorable perception ($M = 73.49$). Sector differences were not found to be significant except for classroom management, which was significantly better in the public sector than in the private sector. There were no differences among gender perceptions either in general perception or in sub-construct ratings.

Recommendations

In light of the results, the following recommendations can be made to stakeholders:

- University lecturers need to be encouraged to develop a conducive learning environment where learners are encouraged to participate and give constructive feedback to promote the interactional dimension of instructional intelligence.
- Instructional planners must be encouraged to design learner-oriented instructional plans (Tomlinson, 2001) rather than use the one-size-fits-all instructional strategy.
- In light of the notable sector difference on classroom management, the faculty development units of both public and private-sector universities—particularly private-sector universities from where the sample was drawn in this study—need to focus their efforts on training on classroom management techniques.
- As a result of the negligible gender differences found, professional development plans need to be based on universal competency standards.
- The office of quality assurance at the institutions concerned may think of developing a tool for measuring instructional intelligence as part of teacher effectiveness evaluations.

Directions for Future Research

- Conduct the replication of this study using a more extensive sample of public/private universities to enhance generalizability.
- Combine student perception data with observations from the classroom or teachers' reports on instructional intelligence to overcome single source bias.
- Use a qualitative or mixed method approach to identify structural or contextual variables (such as class size, organizational support) that contribute to the sector-related difference that was found in terms of classroom management.

- Study gender and instructional intelligence by examining one component of instructional intelligence at a time, to determine whether finer measures will show gender differences where composite-scale measures don't.

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