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Interactive Teaching And Its Influence On Academic Motivation Of Students In a Selected Secondary Vocational School In China

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Abstract: This paper examines the relationship between interactive teaching methods and academic motivation among students in a secondary vocational school in China. A survey was conducted with 310 students to assess their perspectives on the extent of interactive teaching and their own academic motivation. Results showed that students experienced interactive techniques to a high degree and demonstrated strong intrinsic and internalized extrinsic motivation. A significant positive correlation was found between interactive teaching and academic motivation. Students assessed both first-year level and the Electronics department as having higher interactivity and motivation than other groups. The findings highlight the motivational advantages of student-centered interactive instructional approaches within vocational education. Further expansion of interactive methods is recommended along with additional research.

Keywords: interactive teaching, academic motivation, vocational education, student-centered learning

Introduction

China's vocational education system faces pressing challenges in equipping students with the technical skills and motivation required to excel in contemporary careers[1]. While policy reforms have aimed to bolster vocational schools, ingrained mindsets continue emphasizing test scores over practical competence[2]. To address this issue, interactive teaching grounded in constructivist philosophy offers a promising solution. This student-focused approach aligned with industry demands can potentially transform vocational pedagogy. However, research on implementing such techniques remains limited. This paper helps fill the gap by investigating interactive teaching's motivational impact within a Chinese vocational school.

Literature indicates that interactive methods encourage active learning, critical thinking, and problem-solving[3]. However, few studies examine how enhancing interactivity shapes students' motivation in vocational settings. This paper explores this relationship to provide implications for vocational education stakeholders. A survey of 310 students assessed their perspectives on the school's interactivity and their own motivation. Quantitative analysis revealed a significant positive correlation between these variables, underscoring interactive teaching's motivational advantages. The findings can inform policies and practices to enrich vocational instruction. With China striving to develop talent for economic growth, interactive techniques that spark greater engagement could be a gamechanger for vocational education..

Literature Review

Interactive Teaching Philosophy and Evolution

Interactive teaching aligns with constructivist philosophy emphasizing learner knowledge construction through active engagement. Initially focusing on child cognitive development[4], constructivism highlights interaction's role in making sense of new information[5]. Rather than passive absorption, learners play an active role in building knowledge. This paradigm gained traction in the 1960s as researchers analyzed verbal and nonverbal facets of classroom interaction, particularly teacher language[6]. By the 1970s, "interactive teaching" emerged inspired by constructivism. Blackledge examined teacher-student dynamics and roles within interactive contexts[7]. In the 1980s, second language acquisition research emphasized interactive methods[8]. For example, Long's interaction hypothesis stressed the need for negotiation of meaning to acquire language[9].

In China, Wu Kangning took a behavioral stance on interaction[10] while Wen Ping championed student-centric interactive models[11]. Recent research focuses on the emotional aspects of teacher-student relationships in interactive settings[12]. Some studies highlight teachers synchronizing with students in a collaborative journey[13]. Overall, interactive teaching is increasingly promoted as an evolution from China's traditional test-driven pedagogy.

Core Components of Interactive Instruction

Contemporary literature delineates key components central to interactive teaching[14]:

Teacher facilitation involves sparking initial interest before formal instruction through thought-provoking anecdotes or news relating to the topic. This sets the foundation for collaborative knowledge building.

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Learner reflection requires aligning content with student contemplations to tailor instruction. Learners should actively process information to construct holistic understanding.
Collaborative activities constitute interactive discussions within varying group configurations. Solid foundational understanding allows dynamic idea exchange and problem-solving.
Cross-group dialogues foster discussion across groups on complex topics. Student representatives present group findings for deliberation on contentious points. This consolidation of knowledge hones skills.
In essence, interactive teaching weaves together teacher-student facilitation with learner reflection, collaborative tasks, and cross-group exchanges. This multidirectional engagement aims to augment learner autonomy, innovation, and productivity[15].
Theoretical Basis: Constructivism
Interactive teaching has foundations in constructivist theory accentuating learner knowledge construction. This paradigm that originated from studying child cognitive development provides a framework for meaningful learning[16]. Jean Piaget pioneered constructivism which highlights interaction's role in making sense of the world[17].
Core constructivist principles relevant to interactive teaching include[18]:
Subjectivity: Students adopt the subject position while teachers provide thinking space and follow the class' pace.
Process: Developing exploration and discovery abilities takes precedence over transmitting established knowledge.
Communication: Discussion and questioning facilitate knowledge construction.
Creativity: Teaching should nurture innovative thinking through intentional designs.
Feedback: Timely correction of errors guides learning.
In essence, constructivism focuses on student-centered active knowledge generation guided by teachers[19]. Interactive methods encapsulate these tenets. Students construct knowledge by assimilating information based on prior knowledge and experiences. Interaction enables progression through the zone of proximal development where scaffolding propels learners to higher competence levels[20]. Collaborative activities also align with constructivist emphasis on social dimensions of learning[21].
Application in Vocational Education Context
Vocational education aims to cultivate students' practical abilities and occupational capacities. However, persistent flaws include outmoded teaching methods and curriculum disconnect from industry demands[22]. Adopting interactive techniques can potentially address these issues and equip graduates with skills.
Some key advantages of interactive teaching in vocational classrooms include:
- Hands-on learning: Interactive activities like experiments and demonstrations facilitate grasp of technical concepts.
- Critical thinking: Collaborative problem-solving nurtures analytical abilities.
- Soft skills development: Group work hones teamwork, communication and interpersonal skills.
- Customization: Teachers can tailor interactive content to students' competence levels.
- Engagement: Multidirectional exchanges captivate student interest enhancing participation.
- Feedback: Immediate feedback during interactions builds understanding.
- Autonomy: Learner-driven interactive sessions foster independence.
Overall, interactive instruction allows exploration of curricula through collaborations, conversations and meaningful knowledge construction per constructivist principles[23]. This empowers vocational students with self-direction and technical capacities aligning with industry needs.
Motivational Impact of Interactive Teaching
Enhancing interactivity can potentially increase student motivation important for vocational education outcomes[24]. Motivation energizes learning-related behavior and heavily influences vocational skill building[25]. However, research on interactivity's motivational effects in vocational schools remains scarce.
Some key mechanisms by which interactive teaching may bolster motivation include:
- Enjoyment: Varied interactive activities make learning more fun and interesting.
- Autonomy: Learner involvement in shaping instruction satisfies autonomy needs, driving engagement.
- Competence: Successfully applying knowledge during interactions provides competence boosts.
- Relevance: Relating content to practical contexts highlights utility value.
- Peer bonding: Collaborating on interactive tasks fulfills relatedness needs.
- Self-efficacy: Accomplishing activities increases confidence in abilities.
In essence, interactive learning is rewarding and satisfies intrinsic needs for autonomy, competence and relatedness[26]. Constructivist-inspired methods also build self-efficacy fueling motivation[27]. Overall, enhancing participatory and engaging instruction through interactivity can potentially augment academic motivation among vocational students[28]. Further research can elucidate this relationship.

Methodology
Research Design and Respondents
This quantitative study employed a correlational research design using a survey methodology. The sample comprised 310 students from Liaoning Vocational College in China. Stratified proportionate sampling ensured representation of all four academic departments - Electronics and Information, Finance and Trade, Culture and Arts, and Education and

Sports. Most respondents were aged 15-17 years (89%), predominantly male (55%), with equal distribution between first-year (51%) and second-year (49%) levels.

Instrumentation

The survey instrument contained three sections:

Demographic questionnaire recording age, sex, year level and academic department.

"Interactive Response System for the Improvement of the Teaching-Learning Process" questionnaire[29] with 24 items measured on a 5-point Likert scale. It assessed perspectives on interactivity across three factors - learning environment, teaching-learning process, and learning assessment. High internal consistency was evident (α=0.955).

"Academic Motivation Scale"[30] which measured intrinsic motivation (to know, accomplish, experience stimulation), extrinsic motivation (external regulation, introjected, identified), and amotivation. It demonstrated high internal consistency (α=0.787)..

Data Collection and Analysis

The researcher distributed 323 questionnaires to students across 4 academic departments at Liaoning Vocational College. The number of respondents from each department was determined proportionally based on the sample size calculation. The distribution was as follows:

ACADEMIC DEPARTMENT	DISTRIBUTED	RETRIEVED	RETRIEVAL RATE
ELECTRONICS AND INFORMATION	107	102	95%
FINANCE AND TRADE	84	81	96%
CULTURE AND ARTS	71	68	96%
EDUCATION AND SPORTS	61	59	97%
TOTAL	323	310	96%

Table 1. Questionnaire Distribution and Retrieval

Out of 323 questionnaires distributed, 310 were retrieved, yielding an overall retrieval rate of 96%. This high response rate ensured sufficient data for analysis.

The data were encoded and analyzed using SPSS version 20. Frequency distribution and percentages were utilized to describe the respondents' demographic profile. Mean scores and standard deviations were computed to determine the assessments on interactive teaching and academic motivation. ANOVA and t-test were used to determine significant differences in the assessments when grouped according to demographic profile. Pearson r was calculated to determine the relationship between the extent of interactive teaching and academic motivation.

Results

This chapter presents the results of the statistical analysis performed on the data collected from 310 students at Liaoning Vocational College in China. The findings are organized according to the research questions posed in this study.

Demographic Profile of the Respondents

Table 2 summarizes the demographic profile of the respondents in terms of age, sex, year level, and academic department.

VARIABLE	FREQUENCY	PERCENTAGE
AGE		
15-16 YEARS	152	49%
16-17 YEARS	123	40%
17-18 YEARS	28	9%
18 YEARS AND ABOVE	7	2%
SEX		
MALE	172	55%
FEMALE	138	45%
YEAR LEVEL		
1ST YEAR	159	51%
2ND YEAR	151	49%
ACADEMIC DEPARTMENT		
ELECTRONICS AND INFORMATION	102	33%
FINANCE AND TRADE	81	26%
CULTURE AND ARTS	68	22%
EDUCATION AND SPORTS	59	19%

Table 2. Demographic Profile of the Respondents

The table shows that most respondents were aged 15-17 years old (89%), predominantly male (55%), and almost evenly distributed between 1st year and 2nd year levels. The academic department with the most respondents was Electronics and Information (33%), followed by Finance and Trade (26%), Culture and Arts (22%), and lastly Education and Sports (19%).

Assessment on the Extent of Interactive Teaching

Table 3 presents the assessment of the respondents on the extent of interactive teaching they have experienced in terms of learning environment, teaching-learning process, and learning assessment.

FACTOR	MEAN	SD	DESCRIPTION
LEARNING ENVIRONMENT	4.21	0.72	High Extent
TEACHING-LEARNING PROCESS	4.02	0.81	High Extent
LEARNING ASSESSMENT	4.15	0.77	High Extent
OVERALL	4.13	0.65	High Extent

Table 3. Assessment on the Extent of Interactive Teaching

The table shows that the respondents assessed the overall extent of interactive teaching as "high" (M=4.13, SD=0.65). Specifically, the factors learning environment (M=4.21, SD=0.72), teaching-learning process (M=4.02, SD=0.81), and learning assessment (M=4.15, SD=0.77) were all described as "high extent". This indicates that the students experienced extensive implementation of interactive teaching methods at the vocational college.

Table 4 presents the significant differences in the extent of interactive teaching when grouped according to profile.

VARIABLE	GROUPING	N	MEAN	SD	T-VALUE	P-VALUE	RESULT
SEX	Male	172	4.21	0.58	1.46	0.15	Not Significant
FEMALE	138	4.03	0.72				
AGE	15-17 years	275	4.18	0.61	1.73	0.09	Not Significant
17-21 YEARS	35	3.91	0.79				
YEAR LEVEL	1st year	159	4.24	0.53	2.81	0.01	Significant
2ND YEAR	151	4.01	0.74				
ACADEMIC DEPARTMENT	Electronics and Information	102	4.28	0.49	3.44	0.02	Significant
OTHERS	208	4.04	0.71				

Table 4. Difference in the Extent of Interactive Teaching When Grouped According to Profile

The results show no significant difference in the extent of interactive teaching when grouped according to sex and age. However, significant differences were found when grouped according to year level and academic department. First year students (M=4.24) assessed a significantly higher extent of interactive teaching compared to second year students (M=4.01). Among academic departments, Electronics and Information (M=4.28) had significantly higher assessment compared to the other departments combined (M=4.04).

Assessment on Academic Motivation

Table 5 shows the assessment of the respondents on their academic motivation in terms of intrinsic motivation to know, accomplish, and experience stimulation, as well as extrinsic motivation (external regulation, introjected, identified) and amotivation.

FACTOR	MEAN	SD	DESCRIPTION
INTRINSIC MOTIVATION TO KNOW	3.92	0.81	High Extent
INTRINSIC MOTIVATION TO ACCOMPLISH	4.02	0.72	High Extent
INTRINSIC MOTIVATION TO EXPERIENCE STIMULATION	3.88	0.79	High Extent
EXTRINSIC MOTIVATION - IDENTIFIED	4.15	0.67	High Extent
EXTRINSIC MOTIVATION - INTROJECTED	3.76	0.91	High Extent
EXTRINSIC MOTIVATION - EXTERNAL REGULATION	3.21	1.02	Moderate Extent
AMOTIVATION	2.11	0.97	Low Extent
OVERALL	3.61	0.61	High Extent

Table 5. Assessment on Academic Motivation

Results show an overall "high" extent of academic motivation (M=3.61, SD=0.61) among the vocational students. The types of motivation assessed as having "high" extent were: intrinsic motivation to know (M=3.92), accomplish (M=4.02), and experience stimulation (M=3.88); and extrinsic motivation - identified (M=4.15) and introjected (M=3.76). Extrinsic motivation - external regulation (M=3.21) was "moderate", while amotivation (M=2.11) was "low".

Table 6 presents the significant differences in academic motivation when grouped according to profile.

VARIABLE	GROUPING	N	MEAN	SD	T-VALUE	P-VALUE	RESULT
SEX	Male	172	3.72	0.58	2.46	0.01	Significant
FEMALE	138	3.47	0.63				
AGE	15-17 years	275	3.59	0.59	0.89	0.38	Not Significant
18-21 YEARS	35	3.71	0.68				
YEAR LEVEL	1st year	159	3.76	0.53	4.53	0.00	Significant
2ND YEAR	151	3.45	0.65				
ACADEMIC DEPARTMENT	Electronics and Information	102	3.85	0.51	4.12	0.00	Significant
OTHERS	208	3.48	0.63				

Table 6. Difference in Academic Motivation When Grouped According to Profile

Results revealed no significant difference in academic motivation when grouped according to age. However, significant differences appeared when grouped according to sex, year level, and academic department. Males (M=3.72) exhibited significantly higher motivation than females (M=3.47). First year students (M=3.76) were significantly more motivated compared to second years (M=3.45). Among academic departments, Electronics and Information (M=3.85) showed significantly higher motivation versus other departments (M=3.48).

Relationship between Interactive Teaching and Academic Motivation

Table 7 shows the relationship between the extent of interactive teaching and academic motivation based on Pearson r.

VARIABLES	R	P	RESULT
INTERACTIVE TEACHING AND ACADEMIC MOTIVATION	0.71	0.00	Significant

Table 7. Relationship Between Interactive Teaching and Academic Motivation

The computed Pearson r value was 0.71, with a p-value of 0.00 which is less than 0.01 level of significance. This indicates a significant strong positive correlation between the extent of interactive teaching and academic motivation. The result implies that higher levels of interactive teaching are associated with increased academic motivation among vocational students.

In summary, the study's key findings are:

1. Students assessed a high overall extent of interactive teaching in their vocational school, particularly regarding the learning environment, teaching-learning process, and assessment methods.
2. No significant differences were found in interactive teaching extent when grouped by sex and age. However, differences existed between year levels and academic departments.
3. Students exhibited an overall high level of academic motivation, especially intrinsic motivation and extrinsic-identified regulation.
4. Significant differences in motivation appeared when grouped by sex, year level, and academic department but not age.
5. A significant strong positive correlation was found between interactive teaching extent and academic motivation.

The results highlight the potential benefits of interactive teaching in enhancing students' motivation to learn within a vocational education context in China. The findings have meaningful implications for administrators, educators, and policymakers.

Discussion

The study offers valuable insights into the motivational impact of interactive instructional approaches within the context of Chinese vocational education. Overall, students experienced extensive integration of interactive teaching methods as evidenced by high ratings across learning environment, instructional processes and assessment techniques. This aligns with China's policy emphasis on modernizing vocational pedagogy[31]. It also reflects the school's efforts to provide hands-on, engaging education per industry requirements.

Importantly, the degree of interactivity correlated significantly with student motivation levels. This reinforces previous findings that participatory teaching methods enhance learner engagement and internal drive[32][33]. Interactive learning likely stimulated enjoyment, fulfilled psychological needs, and built confidence fueling motivation. The strong link between interactivity and motivation underscores the need to expand interactive techniques within vocational education to captivate student interest and participation.

An unexpected yet noteworthy finding was the higher interactivity and motivation levels reported by first-year and Electronics students compared to their counterparts. A potential reason could be the introductory nature of first-year curricula allowing greater integration of interactive methods versus more advanced content in second-year. Regarding

departments, the hands-on emphasis in technical fields like electronics could facilitate interactive instruction more seamlessly compared to soft skills-focused domains. This highlights the need to customize interactive delivery for optimal motivational benefits across student groups.

Conclusions

This study generated meaningful insights into the positive relationship between interactive student-focused teaching and vocational students' motivation to learn. Students assessed high interactivity extent regarding the school's learning environment, instruction, and assessment. They also exhibited strong intrinsic and internalized extrinsic motivation. Crucially, interactivity levels significantly correlated with academic motivation. First-year and Electronics students reported higher degrees of both interactivity and motivation than other groups.

Overall, the research concludes that learner-centered interactive techniques could be a promising avenue for enriching vocational education in China. Integrating such methods can potentially make learning more engaging, participatory and rewarding for students. However, customization may be needed to maximize motivational gains across diverse academic disciplines and grade levels. With China's economic growth dependent on a skilled vocational workforce, interactive teaching could make an invaluable contribution. Further studies can build on these findings to refine interactive delivery for optimal vocational education outcomes.

Recommendations

Based on the conclusions, the following recommendations are proposed:

1. Sustain and expand the implementation of interactive teaching across academic departments and year levels. Provide training to standardize strategies.
2. Customize interactive techniques based on student demographics to maximize motivational benefits for all learners.
3. Maintain focus on sparking intrinsic motivation and internalized extrinsic motives to fuel students' drive to learn.
4. Develop teaching aids, resources, and activities to assist educators in effectively applying interactive methods.
5. Conduct further studies on interactive teaching involving expanded samples and vocational schools. Examine other variables like academic performance.
6. Promote interactive learning approaches through workshops and seminars to highlight motivational advantages.

The study provides evidence that interactive student-centered teaching methods positively impact motivation to learn within secondary vocational education. Leveraging these techniques can augment classroom engagement, understanding of concepts, and learning outcomes. Their integration is thus highly recommended.

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