International Journal of Advanced Business Studies
https://besra.net/index.php/ijabs/

Full length article

Suggestions on the construction of architectural design major under the background of vocational undergraduate

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ABSTRACT

Against the backdrop of China's vigorous development of vocational undergraduate education and the urgent need for transformation and upgrading in the construction industry, we conducted random interviews with students from vocational undergraduate colleges in Zhejiang Province that offer architectural design majors. Each school interviewed approximately 2-5 students to conduct in-depth interviews on their motivations for choosing architectural design majors. Using qualitative analysis software to encode and analyze interview data, we found that in the current environment, students' choice of architectural design major is closely related to the charm of the architectural design major itself, personal career planning, employment considerations, personal growth experiences, and interests. This study will provide a deeper understanding of the expectations of vocational undergraduate colleges for students, which will be more helpful for the development of architectural design majors.

1. Introduction

Vocational education, as the educational sector most closely aligned with economic development, bears significant responsibilities and missions(Ma and Ye 2024). At present, China is undergoing a critical phase of transforming its economic development model and optimizing its industrial structure. With the rising proportion of high-tech industries, technological innovation has become the main driver of economic growth. The widespread application of technologies such as big data and the Internet of Things has accelerated the intelligence and digitization of industrial production, enhancing the speed of product upgrades and increasing the demand for highly skilled technical professionals(Zhang 2023).

In this evolving context, societal expectations of the education system are also shifting. Graduates are now expected to possess not only a solid foundation of theoretical knowledge but also adaptability, professionalism, and the capacity to tackle real-world challenges(Liu 2023). This shift is particularly relevant in the construction industry, where the integration of practical experience with academic learning is increasingly essential. In the field of architectural design, the construction industry plays a vital role in the national economy, serving as a

key driver of economic and social development. The sector not only generates significant economic value but also stimulates the growth of related industries through its extensive industrial chain(Xiao 2023). In recent years, the construction industry's added value has consistently contributed over 6% to China's GDP, underscoring its considerable impact on economic growth(CHEN et al. 2023).

Against this backdrop, this study investigates the motivations of students in choosing architectural design as a major within vocational undergraduate programs(Tang 2015). Specifically, it examines the perspectives of 10 students from three vocational undergraduate universities in Zhejiang Province that offer architectural design majors. Using Nvivo software to code and analyze interview data, this research explores the factors influencing students' choice of major and their expectations of architectural design programs in vocational undergraduate education(Alam 2021). The findings aim to provide insights that will guide the professional development strategies of educational institutions. By integrating targeted curriculum design with practical experience in architectural design, this study seeks to create an educational framework that not only aligns with societal needs but also supports students in achieving their career aspirations(Kraiwanit, Limna, and Siripipatthanakul 2023).

2. Research Methods

Research design refers to the framework that guides the process of data collection and analysis, ensuring that the research findings can be generalized to the broader population from which the sample is drawn(Chen and Li, 2023). This involves systematically planning how to gather and interpret data to address the research questions or hypotheses in a reliable and structured manner.

This study employs a mixed-methods approach, incorporating both quantitative and qualitative methods through "questionnaire surveys" and "semi-structured interviews" to gather data(Campbell et al. 2020). The qualitative aspect, utilizing pre-designed open-ended questions in the interviews, serves as the primary method for exploring students' perspectives in-depth. The research focuses on "architectural design students" from vocational undergraduate colleges in Zhejiang Province.

Data collection proceeds in two stages:
Questionnaire survey: Aimed at obtaining a broad understanding of students' motivations and general perceptions regarding their choice of major(Strijker, Bosworth, and Bouter 2020).

In-depth interviews: Conducted with 2-5 students from each university to explore more deeply the factors influencing their decision to major in architectural design.

Through these interviews, the study seeks to identify the key motivations driving students in vocational undergraduate programs to pursue architectural design. This approach combines a rich understanding of individual experiences with the ability to identify broader trends among the student population.

This study used qualitative analysis software NVivo 12 for data analysis and adopted a grounded theory research method. The researcher imported the collected interview and questionnaire data into NVivo 12 to generate comprehensive text materials. The research process was to create a specific project in NVivo and then code the original data. Through this multi-level coding process, the researcher refined and saturated emerging nodes and then analyzed the relationships between these nodes. Based on the coding, the reasons why students chose the

architectural design major were analyzed, and the results were used to give suggestions for the construction of the professional undergraduate architectural design major.

Data Encoding

This study conducted in-depth interviews with 10 students from three vocational undergraduate universities in Zhejiang Province that offer architectural design majors, and carefully coded the 10 interview texts sentence by sentence. Ultimately, 146 reference points were established, covering a wide range of concepts that are closely related to family traditions and have a profound impact on the positive growth of adolescents.

Table1 Open coding

code	ID	Open coding	code	ID	Open coding
Expectations for Architectural Design Major	a1	smart buildings	Future employment drivers	c11	architecture industry
	a2	sustainable building practices		c12	changing industry trends
	a3	unique buildings		c13	competitive industry
	a4	well-designed building		c14	construction industry
	a5	actionable designs		c15	entire design industry
	a6	approach design challenges		c16	industry demands
	a7	architectural design curriculum		c17	industry professionals
	a8	architectural design field		c18	industry trends
	a9	architectural design industry		c19	career opportunities
	a10	architectural design major		c20	employment opportunities
	a11	architectural design projects		c21	exciting opportunity
	a12	architectural design skills		c22	internship opportunities
	a13	confident designers		c23	job opportunities
	a14	conventional designs		c24	numerous opportunities
	a15	course design		c25	practical opportunities
	a16	design concept		c26	promising career opportunities
	a17	design details		c27	valuable opportunities
	a18	design firm		c28	various opportunities
	a19	design institutes	The influence of growth experience	d1	early experiences
Personal career planning	b1	attractive career option		d2	educational experience
	b2	career ambitions		d3	experienced instructors

code	ID	Open coding	code	ID	Open coding
	b3	career choices		d4	experienced professionals
	b4	career development direction		d5	experienced teachers help
	b5	career goals		d6	firsthand experience
	b6	career growth		d7	hands-on experience
	b7	career opportunities		d8	learning experience
	b8	career options		d9	meaningful experiences
	b9	career prospects		d10	practical experience
	b10	career stability		d11	prior experience
	b11	career trajectory		d12	real experience
	b12	clear career path		d13	real-world experience
	b13	considering career changes		d14	rewarding experience
	b14	desirable career path		d15	shared experience
	b15	diverse career path		d16	similar experiences
	b16	future career development		d17	valuable experience
	b17	future career development needs		d18	academic undergraduate degree
	b18	future career plans		d19	undergraduate program
	b19	ideal career path		d20	vocational undergraduate college
	b20	personal career goals	Personal interests and hobbies	e1	detail-oriented personality
	b21	personal career growth		e2	mbti personality type
	b22	potential career paths		e3	personal aspirations
	b23	practical career path		e4	personal background
	b24	promising career opportunities		e5	personal career goals
	b25	related career opportunities		e6	personal career growth
	b26	respected career path		e7	personal design concepts
	b27	rewarding career choice		e8	personal development
	b28	stable career opportunities		e9	personal fulfillment
	b29	strong career prospects		e10	personal goals
	b30	successful career		e11	personal interests
	b31	sustainable career		e12	personal interpretation
	b32	future career development		e13	personal passion

code	ID	Open coding	code	ID	Open coding
	b33	future career development needs		e14	personal style
	b34	future career plans		e15	personal tastes
	b35	future challenges		e16	personal values
	b36	future demands		e17	personal vision
	b37	future development		e18	personality traits
	b38	future endeavors		e19	personalized architecture
	b39	future generations		e20	analytical skills
	b40	future planning		e21	applicable skills
	b41	future projects		e22	architectural design skills
	b42	future prospects		e23	artistic skills
	b43	unknown future		e24	balance—skills
	b44	future career plans		e25	critical skill
	c1	career development direction		e26	design skills
	c2	commercial development		e27	diverse skill set
	c3	developing areas		e28	hands-on skills
	c4	developing students		e29	practical skills
	c5	future development		e30	problem-solving skills
	c6	great development prospects		e31	right skills
	c7	personal development		e32	skill development
	c8	promising development prospects		e33	skilled architects
	c9	real estate development		e34	strong problem-solving skills
	c10	architectural design industry		e35	technical skills

2.1. Expectations for Architectural Design Major

This category (a1-a19) captures various expectations and interests that students have toward pursuing an architectural design major. It covers both technical aspects, such as design skills and project types (e.g., sustainable practices, well-designed buildings), as well as broader considerations like curriculum structure and professional challenges. Key insights:

- **Smart and Sustainable Design**: There is a growing emphasis on sustainability and the development of smart buildings, which indicates the relevance of eco-friendly and technologically advanced practices.

- **Industry Influence**: Students expect an architectural curriculum to be closely aligned with industry

standards, providing the confidence needed to succeed in the competitive design field.

- **Professional Skills**: Competency in design software, project execution, and creativity in addressing design challenges are crucial expectations.

2.2. Personal Career Planning

In the second category (b1-b44), the focus is on the students' aspirations, goals, and career trajectories. This shows the depth of planning that students engage in when choosing the architectural design path. Key themes include:

- **Career Goals and Development**: Students have clear ambitions and personal goals, and they see architectural design as a path for long-term career growth (e.g., stable, respected, and rewarding careers).

- **Future-Oriented Mindset**: Future career planning and the evolving nature of the architectural industry are important considerations for students, showing their desire to align their education with future job opportunities.

- **Personal Growth**: Beyond professional development, students are also keen on achieving personal fulfillment and development through their studies.

2.3. Future Employment Drivers

This category (c1-c28) reflects the external drivers influencing students' decisions, such as industry trends and job opportunities. It also indicates how students perceive the architectural industry and how it influences their academic and career choices. Notable insights include:

- **Industry Demand**: The construction industry's dynamism (e.g., competitive nature, changing trends) motivates students to choose this field for its career opportunities.

- **Job Security**: Students are attracted to the perceived stability and growth potential in the architectural sector, with an emphasis on the importance of hands-on experience and practical opportunities.

2.4. The Influence of Growth Experience

The codes under this category (d1-d20) highlight the role of experiences, both educational and personal, in shaping students' decisions. These include past learning experiences and exposure to the architectural field. Key insights:

- **Real-World Exposure**: Practical and firsthand experiences significantly influence students, helping them to develop an interest in architecture.

- **Mentorship and Experience**: Experienced instructors and professionals have a notable impact on students' educational journeys, providing them with valuable guidance and real-world insights.

2.5. Personal Interests and Hobbies

Finally, the personal interests and skills students bring into the field (e1-e35) are critical drivers of their choices. This section emphasizes the connection between a student's intrinsic interests, their personal aspirations, and the technical skills they seek to develop. Key insights:

- **Skill Development**: Students' hands-on skills, artistic talents, and problem-solving abilities play a crucial role in motivating them to pursue architectural design.

- **Personal Aspirations**: Personal fulfillment, values, and passion are major factors influencing their choice of the architectural design major.

3. Conclusion

The coding analysis reflects a comprehensive view of how students choose majors, especially architectural design majors. Here are some key findings:

Future-oriented and career potential: Students are highly interested in transformational opportunities in the architecture industry, rewarding career potential, and clear career growth and development paths are attractive features.

Hands-on and practical learning: Practical experience and real-world application of skills (such as design tools and problem solving) are seen as fundamental to personal and professional growth. Personal and professional alignment: The alignment of personal interests with career aspirations is an important driver. Students seek an academic path that fosters creativity while providing them with the skills they need to succeed in a dynamic, evolving industry. Environmental and technological trends: The growing focus on sustainability and smart building solutions reflects the industry's response to global challenges, which in turn attracts students who are interested in making an impact on the built environment. By understanding these influences, educational institutions can more effectively tailor their courses to meet student expectations while also preparing them to meet the changing needs of the architecture and construction industries.

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