Practical Exploration on the Integration of Garbage Classification into Moral Education in Universities

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Abstract: Waste classification is crucial for the construction of ecological civilization. Promoting waste classification is a systematic project that requires the participation of the entire society. As important educational institutions, universities should play a significant role in promoting ecological civilization. However, compared to primary and secondary schools, waste classification efforts in universities have not met expectations, primarily because universities have not given sufficient attention to integrating waste classification into moral education. In response to this situation, universities should promptly analyze the moral and educational value of waste classification in depth, cultivate students' ecological civilization concepts, integrate waste classification knowledge into students' moral practices, and truly lead the new trend of waste classification on campus.

Keywords: waste classification, moral education, ecological ethics

1. Introduction

With the rapid development of the economy and society, changes in residents' consumption concepts and habits have led to the difficult governance of increasing household waste. Implementing waste classification and reducing waste at the end, in classification, and at the source are crucial. Waste classification is an important measure to promote the construction of ecological civilization. Waste classification in universities is a systematic, comprehensive, and long-term educational project of the new era. How to fully leverage the subjective initiative of university teachers and students, especially undergraduates, to consciously and voluntarily participate in waste classification, truly making waste classification a green new trend in university life and unleashing its moral and educational value, is a problem that urgently needs to be considered and put into practice.

2. The Theoretical Logic of Incorporating Waste Classification into Moral Education in Universities

Compared with moral education at other stages, moral education in universities more emphasis on educational guidance, practical cultivation, and institutional guarantees, fully leveraging the guiding role of socialist core values and integrating them into various aspects of individual development, transforming them into universal emotional identification and behavioral habits.

2.1 Goal Orientation of Ecological Moral Education in Universities in the New Era

Ecological moral education is a new type of moral education concept that integrates abstract moral preaching with objective natural realities, permeating the concept of ecological civilization. It mainly focuses on three elements: ecological balance, resource conservation, and environmental protection. Ecological moral education aims to reconstruct a more diversified moral education mechanism from the strategic height of the harmonious development between human society and the natural world, aiming to effectively promote the penetration of the concept of sustainable development and the construction of a harmonious and civilized society. This provides an effective supplement to the content level of moral education in universities, including guiding students to form a green ecological civilization concept, respecting life, loving nature, protecting the environment, and promoting green consumption concepts. Meanwhile, moral education in universities is the main approach to ecological moral education. Through receiving ecological moral education, students will gradually understand the essence of ecological civilization pursuit, and then be able to examine the relationship between humans and nature from a more rational and intelligent perspective. By applying the moral standards originally confined to interpersonal relationships to the relationship between humans and nature and being willing to personally practice these moral standards, the goals of ecological moral education are achieved.

When conducting ecological moral education in universities, it is necessary to realize the close integration of theoretical teaching and practical activities, provide more opportunities for students to participate in practical learning and verification, present moral education content in a vivid or situational manner, and allow students to engage deeply in specific practical activities, thus generating a strong sense of participation. Waste classification is an effective practical carrier of ecological moral education. Every instance of waste classification by students contributes to environmental governance, energy reuse, and green circular low-carbon development[1], and this practice needs to be sustained until it forms a habit of moral behavior.

2.2 Value Identification of Incorporating Waste Classification into Moral Education in Universities

Ecological civilization is a new type of civilization, and corresponding ecological civilization education is a new type of education, which is an important approach to promoting the construction of ecological civilization. Waste classification is a crucial daily matter that also concerns the overall picture of ecological civilization construction. Integrating waste classification into the moral education system of universities is not only an effective practice of integrating ecological civilization ideology with the deep integration of moral education in universities, but also an inevitable move to meet the needs of the times and innovate the multi-dimensional education model of universities.

Universities are important places for conducting waste classification education, serving as the main battlefield for cultivating students' environmental awareness, enhancing their cultural literacy, and conducting ecological civilization moral education. Therefore, promoting waste classification in universities is crucial. Most universities have dormitories, where students not only generate household waste but also act as promoters of waste classification. By incorporating waste classification as an important component of school moral education and making it a new perspective of moral education, we can better guide students' ecological moral behavior, making university students pioneers in environmental protection and guiding the social trend of environmental protection. We should not only teach students how to accurately classify and properly dispose of waste but also make teachers and students, especially young university students, understand the significant importance of waste classification to the construction of ecological civilization, thereby enhancing their identification with the value of ecological civilization construction[1].

2.3 Analysis of the Advantages of Incorporating Waste Classification into Moral Education Practice

The fundamental task of education in universities is to cultivate students' morality, intelligence, physical fitness, aesthetic appreciation, and labor skills, with moral education being interrelated and closely coordinated with intellectual, physical, aesthetic, and labor education. The essence of moral education lies in practice, through which students achieve moral development and character shaping, while moral education practice also serves to assess students' moral conduct and ethical values. Enhancing social responsibility and fostering ethical and moral perspectives through social practice is a mainstream view in Western education, and after long-term development, it has formed a stable, scientific, and effective working mode.

In terms of form, moral education in universities not only unfolds in textbooks and classrooms but also accompanies various forms of social practice, allowing moral education content to subtly infiltrate the hearts of learners through comprehensive interaction. Waste classification is precisely such an activity guided by the concept of ecological civilization and aimed at enhancing moral identification through practical engagement, which can increase the proportion of practice in teaching, allowing students to gain and practice moral cognition and appreciate the charm of moral education through hands-on waste classification practices and personal experiences.

In terms of subjectivity, although we emphasize promoting the generation and development of students' subjectivity and fully leveraging their autonomy and initiative in ecological moral education practice, this process also constructs the subjectivity of teachers. Teachers and students jointly undertake the task of ecological moral education. In some universities, teachers and students form service teams, with teachers guiding, regulating, and supervising the promotion of waste classification practices to ensure the cultivation of students' autonomy and practical abilities. At the same time, teachers also participate as subjects, actively engaging in waste classification. From classifying waste themselves to serving as waste classification supervisors to encourage others to classify waste, and then to integrating professional knowledge and scientific methods to try new approaches, construct new models, and develop new tools to further promote and improve waste classification work[2], this process realizes the dual subjectivity of teachers and students in moral education practice teaching.

In terms of content, waste classification not only has moral education attributes but also serves as effective labor education. Using waste classification as a starting point can organically integrate classroom teaching, campus cultural construction, and social practice activities. Sorting and disposing of waste helps university students develop good living

habits and cultivate a sense of social responsibility. Influenced by Dewey's pragmatic educational theory, American universities emphasize and emphasize the practicality of moral education and generally attach importance to cultivating college students' awareness of social practical service. In China, the integration of knowledge and practice occupies an important position in traditional educational theories, with the educational concept of unity of knowledge and practice being the essence of traditional educational theories, that is, obtaining rational knowledge from the practice of "doing" and also the process of sensory recognition of "knowing" to verify the truth of "doing." [3]By urging students to do the crucial small task of waste classification and encouraging them to actively participate in waste classification voluntary services in schools, communities, and rural areas, they can ultimately achieve upliftment in social wisdom, social action ability, social emotions, and spirituality.

3. Current Situation and Analysis of Reasons for Waste Classification Implementation in Universities

3.1 Current Situation and Main Issues of Waste Classification in Universities

Since the implementation of waste classification in China, most regions have achieved a 100% awareness rate of waste classification, and citizens' voluntary classification awareness is continuously increasing. However, in contrast, the situation of waste classification in universities has not yet achieved high standards of full coverage. There are varying degrees of problems such as uneven implementation, insufficient progress, and incomplete classification. Specifically:1.The rigid norms and constraints of waste classification in universities are not strong, and the institutional supply is inadequate.2.University students lack a strong awareness of voluntary classification, have insufficient knowledge of waste classification, and there are phenomena of mixed throwing and mixing of waste.3.Waste classification facilities are not complete, updated in a timely manner, and the signage is incorrect, and the atmosphere of waste classification propaganda is not strong.4.Waste classification voluntary service student groups have low self-governance effectiveness.5.Online shopping consumption hinders waste reduction at the source in universities, and the utilization rate of waste recycling is not high.

At the same time, in the education system, the classification of school life waste presents the problem of a gradual weakening of students' cognition from lower age groups to higher age groups, and the gradual deterioration of waste classification in schools from central urban areas to remote urban areas.

3.2 Moral Cognitive Dissonance Affects University Students' Intentions and Behaviors Regarding Waste Classification

Research results based on the Theory of Planned Behavior (TPB), a rational behavior theory jointly proposed by Ajzen and Fishbein, show that personal moral norms have the strongest positive impact on the intention of waste classification. Individuals with higher personal moral norms tend to have higher intentions and behaviors of waste classification. As moral awareness increases, individuals show more obvious classification enthusiasm and willingness to act, to a greater extent overcoming the influence of surrounding group behaviors. Scholars such as Xiu Xintian proposed that perceived behavioral control and subjective norms are the two major influencing factors of waste classification intentions, while the impact of behavioral attitudes on waste classification intentions is the weakest. Attitude surveys on waste classification among university students indicate that while students generally hold positive attitudes towards waste classification, it does not necessarily mean an equal degree of negative attitude towards mixed waste disposal. In fact, external pressures to translate attitudes into intentions and intentions into behaviors remain significant.The theory of cognitive dissonance, proposed by American social psychologist Leon Festinger in 1957, suggests that individuals tend to change their self-perception to better adapt to the object when their behavior and attitudes are inconsistent. University students tend to accept mixed waste disposal to balance the guilt brought about by mixed waste disposal. Only individuals who increasingly endorse waste classification while increasingly disapproving of mixed waste disposal show better intentions towards waste classification. Based on this, it can be concluded that the integration of waste classification into the university's moral education system is important and necessary. To promote university students' intentions and behavioral practices in waste classification, universities should enhance students' awareness and knowledge of waste classification in an effective manner, guide them to establish a sense of subjectivity in waste classification, create a strong atmosphere of waste classification on campus, thereby stimulating students' personal moral norms, enhancing their sense of autonomy and control over waste classification, as well as their guilt for not classifying waste, thus transforming waste classification intentions into classified behaviors.

3.3 Lack of Long-term Intervention of Existing Social Norms on Waste Classification Among University Students

As mentioned earlier, the waste classification work in most universities has not yet reached the level of moral education, which hinders the maintenance of university students' awareness of waste classification and the implementation of behaviors. Similarly, existing social norms also have a significant impact on university students' intentions regarding waste classification. Research results show that descriptive norms, obligatory norms, and prohibitive norms all significantly influence individuals' intentions regarding waste classification and, to some extent, also contribute to the formation of university students' moral values related to waste classification.

Positive descriptive norms such as "Waste classification is everyone's responsibility" and posters promoting waste classification on campus, as well as information on "exemplary dormitories and classes for waste classification," can all promote waste classification among university students to varying degrees. Conversely, if students receive reverse descriptive information such as "most people don't classify waste" or "even if waste is classified, it ends up being mixed disposal at the end," they may feel powerless or sense futility. Moreover, when facing norm conflicts, most people tend to adopt reverse descriptive norms. Currently, the overall level of waste classification in universities is not high, which explains why even though university students generally agree with waste classification, observing the waste classification behavior of their reference group may make them feel "powerless," leading to a relaxation of their long-term commitment to waste classification behavior, resulting in a phenomenon of "conceptual agreement but behavioral lag."

Both obligatory norms and prohibitive norms can be understood as mandatory norms, which in this context do not specifically refer to legal norms but also include school regulations and rules. When using social norms to intervene in waste classification behavior, descriptive norms should be combined with mandatory norms to stimulate university students' awareness of the consequences of not classifying waste, thereby achieving the effectiveness of long-term intervention. However, a review of China's existing mandatory norms related to waste classification reveals that there are still issues such as weak normative constraints and low enforcement efficiency in legislation and enforcement.

Since 2019, China has entered the "mandatory era" of waste classification, with major cities such as Beijing, Shanghai, and Guangdong amending or enacting legislation on household waste management to strengthen the entire process of waste classification and enforce strict law enforcement. Taking Beijing as an example, Beijing began implementing the "Beijing Municipal Household Waste Management Regulations" as early as March 2012, and the revised regulations officially took effect on May 1, 2020. According to relevant surveys, before the revision of the regulations, less than 20% of Beijing residents were aware of them. After the revision, public institutions such as schools and hospitals, as well as commercial establishments, were required to classify waste. Article 10 specifically stipulates that "the education department shall incorporate knowledge of waste reduction, classification, and treatment into primary and secondary schools and preschool education teaching." However, this provision does not include universities. After the implementation of the regulations for some time, research conducted by scholar Wang Fei on the waste classification and recycling status and issues in Beijing universities showed that waste classification actions in Beijing universities were relatively lagging and did not achieve the expected results. Among the surveyed respondents, only about half of the university students chose to "occasionally classify waste," while the proportion of those who chose to "regularly classify waste" was less than 20%. In contrast, the "Shanghai Municipal Household Waste Management Regulations," which came into effect in July 2019, included universities in the adjustment scope. Article 40 of the regulations stipulates that "the education department shall incorporate knowledge of waste classification into the education content of kindergartens, primary and secondary schools, and institutions of higher learning in this municipality, and organize activities such as waste classification education and practice." However, like many cities' household waste management regulations, the enforcement of legal responsibilities for violations of waste classification behavior mainly follows the "no enforcement" principle, and the intervention effect on university students is even discounted. Therefore, the mandatory norms for waste classification among university students mainly rely on relevant regulations and requirements formulated by the schools. However, considering the current situation of universities, most of them do not pay enough attention to the design of institutional norms.

3.4 Impact of the Lack of Evaluation System on the Effectiveness of Garbage Classification in Universities

Currently, waste classification education and even ecological civilization education differ from traditional education in many aspects such as content and form, which requires corresponding evaluation systems for guidance and incentives. However, the existing seven major indicators system for the evaluation of undergraduate teaching in general higher education institutions (school positioning, faculty team, teaching conditions and utilization, professional teaching and teaching reform,

teaching management, academic atmosphere, and teaching effectiveness) still lacks clear evaluation indicators for ecological and moral education. The absence of evaluation indicators in turn affects the insufficient supply of ecological civilization education. For example, there is a lack of professional courses in ecological civilization education, and limited offerings of public courses; waste classification education content is relatively superficial, mostly focusing on basic classification requirements, environmental knowledge, ecological crises, and other common sense issues; educational methods are relatively outdated, lacking in-depth philosophical analysis of ecological ethics and values. The lack of sufficient knowledge reserve on waste classification and the lack of deep ecological ethical thinking greatly hinder the promotion and implementation of waste classification in universities.

4. Exploring Practical Paths to Promote Garbage Classification in Universities

4.1 Exploring the Path to Promote Waste Sorting in Universities

Integrating waste sorting with the fundamental goal of "nurturing virtue and talent" in universities highlights the importance of waste sorting as an effective means and leverage for ecological and moral education. It plays a crucial role in fostering the ecological civilization concept among university students and contributing to national ecological civilization construction through action, aligning perfectly with the fundamental task of university education. Therefore, each university should prioritize waste sorting as a central, long-term focus, strengthen publicity and education efforts, promote bidirectional participatory moral education practices among teachers and students, and facilitate the establishment of long-term incentive and punishment mechanisms as well as an educational evaluation system for waste sorting on campus. Meanwhile, relevant authorities should promptly enact mandatory social norms, continuously improve institutional systems, and thereby enhance universities' emphasis on waste sorting as a moral education task. For example, the notice issued by the Shanghai Municipal Administration of Gardening and Urban Landscape on the "Implementation Plan for Shanghai's Household Waste Sorting Work in 2024" specifies that "the education sector should comprehensively incorporate waste sorting education into the overall framework of school ideological and political education, integrate waste sorting and other ecological civilization practices into labor education hours, and focus on waste sorting awareness education for teachers and students." It further states the need to "continue to promote waste sorting work and link it with school assessment and performance evaluation of university party and government leadership." This implementation plan integrates the effectiveness of waste sorting work into the assessment scope of university party organizations, aiming to create exemplary areas for refined waste sorting in eligible universities, with designated departments tasked to ensure implementation. Similarly, universities can incorporate students' performance in waste sorting into the scope of student assessment and evaluation, highlighting the orientation of education.

4.2 Promoting Waste Sorting in Ideological and Political Education Classes, Achieving Two-way Efforts with the "Social Classroom"

Some scholars suggest that waste sorting knowledge dissemination and even ecological civilization education should establish a lifelong learning system. This system should begin with ecological moral enlightenment in the primary education stage, focus on the study of ecological aesthetics courses in the intermediate education stage, and incorporate ecological science content into other professional disciplines in the higher education stage. This approach aims to cultivate students to explore and study the relationship and universal laws between human society and the natural environment from the perspective and methods of ecosystems, forming a continuous and strong sense of moral identity.

Currently, many universities have attempted to offer courses related to waste sorting, and these courses are not limited to environmental science or ecology-related majors. The popularity of such courses should be comprehensive. Some universities have incorporated waste sorting knowledge dissemination into the "first lesson of the semester," actively exploring the organic integration of ideological and political education courses with course ideology. For example, in 2020, Beijing University of Chemical Technology produced the "Co-creation of Civilization through Waste Sorting" series of ideological and political micro-lessons, guiding students to transform profound understanding into conscious behavior. With the awareness of waste sorting in universities now reaching almost 100%, the requirements for the content and format of related courses should also increase. These courses should no longer be limited to simple waste sorting knowledge but should instead create a student-centered "immersive" classroom teaching system. There should be continuous innovation in teaching methods, content, and classroom interaction design to enhance the attractiveness and autonomy of waste sorting moral education courses. This approach aims to guide students in deep-level thinking about ecological civilization and form relatively stable values.

4.3 Cultivating Waste Sorting Social Practice Teams through Waste Sorting Specialty Colleges as Carriers

Universities' moral education work must fully recognize the important role of groups or organizations in students' growth. For universities, they should actively explore the integration of internal and external resources to enhance the effectiveness of group moral education content learning. They should also create platforms for student self-governing organizations to exert their subjectivity, prompting students to consciously form an internal mechanism for moral education learning through group internalization.In recent years, some universities have actively explored cooperation between government and schools to innovate and promote waste sorting work. In July 2019, Taizhou Open University collaborated with the Taizhou Municipal Waste Sorting Office to create China's first Waste Sorting Education Specialty College - the Taizhou Waste Sorting Public Education College. In September 2019, Ningbo Open University cooperated with the Ningbo Municipal Comprehensive Administrative Law Enforcement Bureau to establish the Ningbo Waste Sorting College. In August 2021, Xiamen Urban Vocational College and the Xiamen Municipal Office of the Leading Group for Domestic Waste Sorting jointly established the "Xiamen Waste Sorting College."These three waste sorting specialty colleges share certain commonalities in their schooling model, organizational structure, and educational goals. They represent a new type of college that integrates waste sorting propaganda, education, and research.

Taking Ningbo Garbage Classification College as an example, it primarily relies on the faculty and student resources of Ningbo Open University to provide diversified garbage classification education and training services to various social groups through various forms such as field visits, research studies, and grassroots lectures by expert teams. Over the course of three years, it has provided training services to over 120,000 garbage classification managers, frontline workers, and social work volunteers. It has also explored and refined the "six-step educational method" of "going grassroots, integrating resources, establishing bases, conducting training, conducting research, and promoting models," providing a model for garbage classification propaganda and education nationwide.Throughout this process, both faculty and students actively participate, forming teams to conduct in-depth research on garbage classification in communities, villages, schools, commercial areas, and scenic spots, achieving effective interaction. Additionally, they collaboratively develop garbage classification popular science materials and textbooks, create engaging courses such as "Garbage Classification House-Hopping" and "Garbage Classification Flying Chess," and jointly apply for and research garbage classification-related scientific research topics, promoting garbage classification education models from multiple perspectives.In this manner, students fully leverage their initiative, transitioning even from student roles to that of educational speakers, achieving social interaction. This shift indicates a gradual transition of educational content from the conveyance of theoretical knowledge to social production practices, thus aligning educational work with the practical needs of society and people's daily lives.

4.4 Improving Garbage Classification Infrastructure and Innovatively Promoting "AI + Garbage Classification" Smart Processing Models

To enhance the refinement of garbage classification work in universities, it is essential to scientifically establish and continuously improve intelligent garbage classification facilities and equipment. For example, adopting the "AI + Garbage Classification" and "unmanned non-timed dumping mode" can optimize and upgrade the existing timed dumping mode, innovating the garbage classification network from both technological and value perspectives to achieve better source classification. In 2022, Suzhou Nagu Environmental Protection Technology Co., Ltd. in China introduced a comprehensive upgrade to garbage rooms, equipped with high-precision intelligent weighing scales, AI intelligent perception cameras, integrated evaluation points machines, environmental condition detection systems, and other IoT devices, integrating AI facial recognition, deposit behavior recognition, quality intelligent evaluation, precise voice education, and autonomous big data analysis functions. This optimization not only improves the dumping scenario but also achieves refined management of source classification behaviors. Moreover, the AI intelligent perception camera can intelligently detect and automatically capture evidence of non-standard dumping, providing a basis for law enforcement and aiding in the establishment of a long-term supervision mechanism. Subsequently, AI technology can be applied to mid-end collection, end disposal, and full-chain supervision scenarios, giving garbage classification a technological boost.

On the other hand, universities should leverage their advantages in policy research, technological innovation and application, talent cultivation and training, publicity and education, social supervision, and evaluation to provide intellectual support for the research and formulation of garbage classification standards and regulations. Encouraging faculty and students to integrate garbage classification with relevant disciplines and research achievements can enable technology to transform garbage into valuable resources. Strengthening cooperation between universities and enterprises can promote the promotion and practice of "Internet +" and "digital +" garbage classification models, actively addressing the difficulties

and bottlenecks in garbage classification work, and contributing to the creation of a smart life garbage management system. This will contribute intelligent solutions to achieve higher levels of garbage classification and enhance the social value recognition of university students.

5. Conclusion

Garbage classification is "easy to know but hard to practice," emphasizing action by everyone and requiring long-term persistence. It necessitates extensive participation and unremitting efforts from the whole society. As talent cultivation bases and hubs of knowledge innovation, universities should not lag behind in advancing garbage classification efforts. Integrating garbage classification into university moral education is of great significance. Promoting garbage classification on university campuses requires guiding faculty and students to become real practitioners of garbage classification, fostering habits, and shaping culture. This contributes Chinese wisdom to the construction of a beautiful China and the protection of the global ecological environment.

Acknowledgments

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