Educational Modernization and the Educational Horizons and Growth Pathways of Kazakh Adolescents in Altay, Xinjiang: A Mixed-Methods Field Study

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Abstract. As educational modernization advances and the system of educational guarantees in ethnic minority areas improves, education plays an increasingly important role in promoting adolescent development and expanding future choices. This study uses semi-structured interviews, a questionnaire survey and participant observation with Kazakh students of different age stages and in different educational environments in Fuyun County, Altay, Xinjiang, and with educators, to explore how educational development affects the educational horizons, ways of learning and growth pathways of adolescents in ethnic minority areas. The findings show that the educational situation of Kazakh adolescents in Altay differs noticeably from conventional outside perceptions. Access to educational opportunities is now fairly well guaranteed and fee reductions and boarding support are available to students from agricultural and pastoral areas; family support for children's schooling keeps rising, including support for studying in inland provinces; adolescents display fairly strong modern characteristics in ways of learning, information acquisition and future planning, and their educational horizons and goals have moved beyond geographical limits and show a fairly high degree of consistency with those of peers in the eastern coastal provinces. At the same time, gaps in educational resources remain between areas and groups, and the quality of education in ethnic minority areas still needs to be raised. Future educational development in ethnic minority areas should therefore, while consolidating universal access, further optimize resource allocation, strengthen school infrastructure, raise the level of the teaching force and improve guidance for further study and career development.

Keywords: educational modernization, Kazakh adolescents, educational horizons, growth pathways, Altay.

1. Introduction

Education, as a core force driving social development, is not only a tool for transmitting knowledge but also an important medium that directly affects individuals and increases social mobility in the present day. In the ethnic minority areas of China in particular, the scale and intensity of educational provision bear not only on the personal growth of adolescents but are also closely linked with regional modernization, social integration and other goals of educational equity. For a long time, border areas have been constrained by their particular geographical environment, level of economic development and traditional ways of life, and the spread of education in ethnic minority areas has often been troubled by an uneven allocation of educational resources and limited teaching capacity. Kazakh communities in Xinjiang, which have maintained a distinctive nomadic culture, are mostly located in remote agricultural and pastoral areas, where natural and economic conditions have to some extent limited the allocation of educational resources and the pace at which development takes hold [1]. Existing studies have also examined the influence of family factors and traditional views on the educational choices and future plans of children in Xinjiang [2, 3].

However, with the continued advance of national education policy and the improvement of the system of educational guarantees for ethnic minority areas, educational development in the Kazakh border areas has largely met the initial need of having a school to attend, and attention has begun to turn to the further goals of attending a good school and receiving high-quality education. At the national level, measures such as the Rural Teacher Support Plan [4], the Plan for the Targeted Training of Outstanding Teachers [5], the Special Post Plan for teachers in rural compulsory

education schools [6], the teacher programme of the talent support plan for remote and poverty-stricken areas, border ethnic areas and old revolutionary base areas [7] and the inland Xinjiang classes [8] have been introduced in succession. Given that educational opportunities for Kazakh adolescents have been gradually extended, a question that deserves further exploration is how the spread and development of the education system affect the educational horizons and growth pathways of Kazakh adolescents in Altay. This study therefore takes Kazakh children and adolescents in Fuyun County, Altay Prefecture, as its main subjects, adds a comparison with children in inland cities, and reads from a micro perspective how the introduction and implementation of education policy reshape the educational horizons and future plans of contemporary adolescents. The remainder of the paper reviews the related literature, describes the methods, presents the interview and questionnaire results, discusses the differences from existing studies and the limitations, and ends with conclusions and suggestions.

2. Literature Review

2.1. Difficulties and paths of educational modernization in border ethnic areas

Xu, Kang and Meng [9] examined the development paths of educational modernization in border ethnic areas under the background of rural revitalization. The authors identified the serious loss of rural students and high-quality teachers and the lagging construction of educational informatization as practical difficulties currently facing education in border areas, and proposed paths including strengthening ethnic unity education, rebuilding cultural confidence, cultivating a backbone of ethnic minority professionals, increasing the occupational supply of teachers and promoting the empowerment of education by information technology.

Yu and Upur [10], through a review of the current situation and an analysis of its causes, examined the practical bottlenecks and responses in the development of ethnic education in Xinjiang. The authors pointed to backward educational ideas and insufficient investment, a relatively low quality of basic education and of the teaching force, and the lagging national common language (Putonghua) environment and textbook construction in southern Xinjiang as current difficulties, and proposed changing ideas so as to guarantee educational investment, raising the quality of teacher education and in-service teacher training, and advancing bilingual (minority language and Chinese) education and textbook reform as responses.

2.2. Language education and the stability of the teaching force

Ma [11], reflecting on the current situation and possible countermeasures, examined how to strengthen bilingual education and improve overall teaching quality in Tibetan areas and Xinjiang. The author proposed that primary and secondary schools retain an education system in which several models coexist, so as to take account of both Chinese language learning and the transmission of mother tongues; advocated two-way language learning and the incorporation of research on ethnic minority languages and cultures into the mainstream education system; suggested that the central government coordinate finance and implement preferential incentive policies to stabilize the teaching force in border areas; and argued for moving beyond the traditional thinking of returning to build the hometown, encouraging ethnic minority university graduates to seek employment in inland provinces so as to promote deeper integration among ethnic groups.

The Special Post Plan for teachers in rural compulsory education schools [6], the teacher programme of the talent support plan for remote and poverty-stricken areas, border ethnic areas and old revolutionary base areas [7], the Rural Teacher Support Plan [4], the living subsidy policy for rural teachers [12] and the Plan for the Targeted Training of Outstanding Teachers [5], issued between 2006 and 2021, are consistent in direction with the central fiscal coordination and preferential incentives advocated by Ma [11].

2.3. Intergenerational mobility in education and family factors

Gao [2] took the Kazakh community of Village B in Xinjiang as a case and, with Kazakh children and their parents as subjects and a combination of qualitative and quantitative methods, examined the level of education and the state of intergenerational mobility among the Kazakh group, the factors affecting them, and the risk of class solidification. Intergenerational mobility in education refers to a change in the position of the younger generation relative to their parents in level of education and social class that is achieved through education, and reflects the degree to which family background affects the development opportunities of the younger generation.

2.4. Girls' education and the transition to modernity

Cai [3] explored innovative development paths for the education of Kazakh girls. Zhu [1], drawing on the theory of the cultural ecological environment and on field case studies, examined the development of modern education among the Kazakh in Xinjiang, covering education in pastoral areas, bilingual (Kazakh and Chinese) education, the adjustment of school layout and the merging of ethnic minority and Han schools.

2.5. Summary

These studies approach education in ethnic minority areas mainly from the level of the education system, policy and development paths, and discuss resource allocation, the stability of the teaching force, language education and family factors. The educational experience of adolescents themselves, in particular how their educational horizons and growth pathways change in the course of educational modernization, is less often presented directly.

3. Methods

3.1. Site and participants

The study was conducted in Fuyun County, Altay Prefecture, Xinjiang. Interviewees were local Kazakh students of different age stages and in different educational environments, together with local educators. Seven students were interviewed, two of whom were senior secondary students. Interviewees were not randomly sampled but were contacted with the help of a local guide, and the families of the interviewed students were of middle to upper economic standing by local standards (see Section 5.2). A comparison group of twenty students from inland provinces completed a parallel version of the same questionnaire (see Section 3.3). Of the twenty-five Altay respondents, 28.0% were junior secondary students, 56.0% senior secondary students and 16.0% university or junior college students; of the twenty inland respondents, the proportions were 15.0%, 80.0% and 5.0%. Among the Altay respondents, 36.0% of families were semi-settled and still migrated in some seasons, 56.0% were fully settled with fixed housing and 8.0% had moved into a town; none was still fully nomadic (see Table 1).

3.2. Semi-structured interviews and participant observation

The study combined semi-structured interviews, participant observation and a questionnaire survey in order to present the educational horizons and growth pathways of Kazakh adolescents in Altay from several dimensions. Semi-structured interviews were conducted with these students and educators, and participant observation was carried out at summer pastures and at settlement sites.

3.3. Questionnaire survey

The questionnaire was distributed by snowball through the interpersonal networks of the interviewees and therefore constitutes convenience sampling. Twenty-five valid questionnaires were obtained from Kazakh students in Altay and twenty from students in inland provinces. The Altay version of the questionnaire contained nine items and the inland version eight; item numbers below

follow the Altay version. Q1 asked for the respondent's current stage of schooling; Q2, asked only in Altay, asked for the family's current form of residence; Q3 and Q4 asked for the educational attainment of the father and the mother; Q5 asked for the highest level of education the respondent intended to reach; Q6 asked whether the family supported the development of special talents such as art and sport; Q7 asked whether there were examples of educational success among people nearby; Q8 asked where the respondent intended to develop in the future; and Q9 asked respondents to rate four statements about attitudes to education on a five-point scale from 1 (strongly disagree) to 5 (strongly agree). In the inland version, the options of Q8 and the third statement of Q9 refer to the hometown without mentioning Xinjiang. Given the sample sizes, the questionnaire data are reported as descriptive percentages and mean scores only and no statistical inference is made.

4. Results

4.1. Findings from interviews and observation

First, educational resources in the Altay area have improved noticeably, but regional differences remain. The interviews indicated that the Altay area has a fairly complete teaching system and educational resources; the interviewed students and educators also mentioned that the junior secondary classes within Xinjiang and the inland senior secondary classes for students from Xinjiang [8] provide fee reductions and boarding support for students from agricultural and pastoral areas. However, gaps in educational resources still exist between different areas and different groups.

Second, educational opportunities have increased, but the development pathways of different groups are still affected by family and environment. The educational attainment of the parents of the surveyed students was mainly junior secondary or below (see Table 1), but the parents interviewed were willing to support their children's further education. Even so, adverse family circumstances still affect educational opportunities and future choices.

Third, the goal of education has shifted from further study alone towards all-round development, but deviations remain in practice. The interviews suggested that parents and students generally hope to change their future through further study, while different groups understand educational success differently; besides examination scores and progression rates, attention also needs to be paid to the ability to live independently, the development of interests, social adaptability and the cultivation of vocational ability.

Fourth, the coverage of education policy has expanded, but some groups still lack long-term support.

Fifth, students generally wish to develop outside the area, but local development still needs to be strengthened. Many students in the interviews expressed the wish to attend universities in inland provinces and to learn about the outside world, which indicates that education has raised students' expectations for development. At the same time, this brings a new problem. When students gain a wider horizon through education, whether the local area can provide sufficient development opportunities becomes a question; if local industry, employment and educational resources are insufficient, talented people may continue to flow out.

4.2. Questionnaire results

Through items on different dimensions, the questionnaire presents from four aspects the differences and the internal complexity between Kazakh adolescents in Altay and adolescents in inland provinces. The full results are given in Table 1 and Table 2, and the distributions for Q5, Q6 and Q8 are shown in Fig. 1. Most notably, contrary to the common assumption that family educational views become more open as the economy develops, parents in Altay showed a higher level of support for their children's development of special talents than parents in inland provinces (80.0% vs 30.0%). One possible explanation is that this reflects a value orientation within the nomadic cultural tradition that emphasizes practical skills and respects diverse individual development, together with a certain resilience and openness of family educational views in the process of the transition to settled life; since the percentages describe only the two samples, this explanation is not tested here.

Table 1. Questionnaire results for Q1 to Q8 among inland students (n = 20) and Altay Kazakh students (n = 25), as the percentage of respondents choosing each option. Q2 was asked only in Altay. The last column is the inland value minus the Altay value, in percentage points.

Item	Option	Inland (n = 20)	Altay (n = 25)	Difference (inland minus Altay)
Q1 Current stage of schooling	Primary school	0	0	0
	Junior secondary	15	28	-13
	Senior secondary	80	56	24
	University or junior college	5	16	-11
Q2 Family's current form of residence	Still fully nomadic (seasonal migration)	not asked	0	
	Semi-settled (migration in some seasons)	not asked	36	
	Fully settled (fixed housing)	not asked	56	
	Moved into a town	not asked	8	
Q3 Father's educational attainment	No schooling	0	0	0
	Primary school	5	24	-19
	Junior secondary	0	44	-44
	Senior secondary or vocational	30	28	2
	Junior college or above	65	4	61
Q4 Mother's educational attainment	No schooling	0	0	0
	Primary school	0	40	-40
	Junior secondary	20	40	-20
	Senior secondary or vocational	25	16	9
	Junior college or above	55	4	51
Q5 Highest intended level of education	Senior secondary or vocational	0	4	-4
	Bachelor's degree	10	20	-10
	Postgraduate or above	85	68	17
	Undecided	5	8	-3
Q6 Family support for developing special talents	Strongly supportive	30	80	-50
	Not opposed but not especially supportive	25	16	9
	Not very supportive; academic subjects matter more	40	4	36
	Not supportive at all	5	0	5
Q7 Examples of educational success nearby	Yes; many	50	52	-2
	Yes; a few	45	40	5
	None heard of	5	0	5
	Not sure	0	8	-8
Q8 Intended place of future development	Definitely a large city or inland province	65	36	29
	Stay and develop in the hometown	5	20	-15
	Either; depends on future employment	30	44	-14
	Have not thought about it	0	0	0

Table 2. Mean scores on the four attitude statements of Q9 among inland students (n = 20) and Altay Kazakh students (n = 25), on a five-point scale (1 = strongly disagree, 5 = strongly agree). The last column is the inland value minus the Altay value, in scale points.

Statement	Inland (n = 20)	Altay (n = 25)	Difference (inland minus Altay)
The chance that education changes one's fate has grown	3.35	3.76	-0.41
A practical skill can also lead to a good life	3.10	3.52	-0.42
Staying in the hometown is not a bad option	3.50	3.84	-0.34
Examples around me convince me that education is useful	3.30	4.04	-0.74

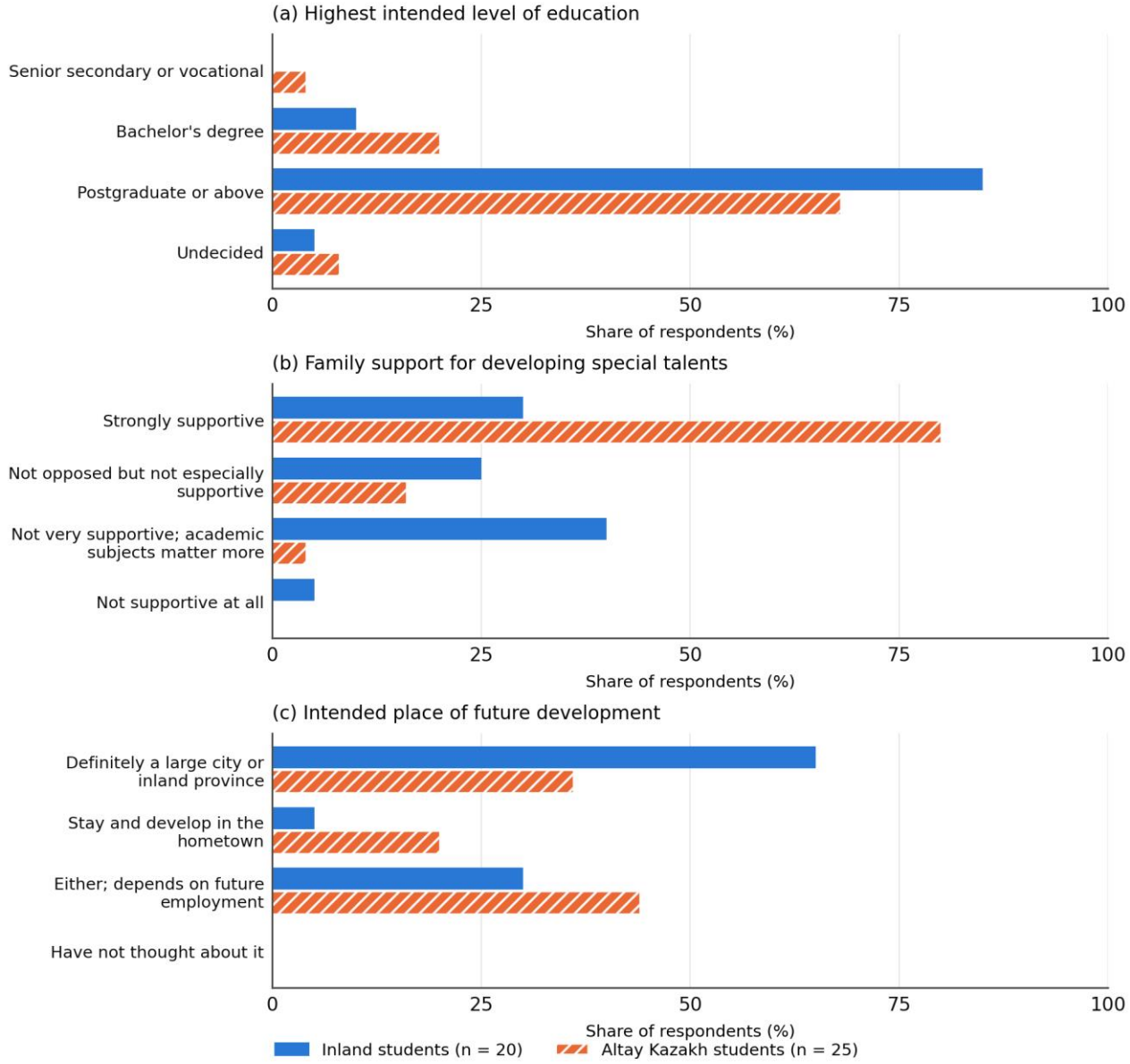


Fig. 1 Distribution of responses to Q5, Q6 and Q8 among inland students (n = 20) and Altay Kazakh students (n = 25). All values are taken from Table 1.

The percentages and mean scores above describe the two samples only and do not constitute statistical inference; they cannot be used to infer that a significant difference exists between the two populations. The core conclusions of this study still rest mainly on the qualitative material obtained from interviews and observation.

The main findings are as follows.

(1) Parental educational capital differs greatly, but the gap in children's educational expectations is smaller than the intergenerational gap. Among inland students, 65.0% of fathers and 55.0% of mothers hold a junior college qualification or above; among Altay students, the proportion is only 4.0% for fathers and 4.0% for mothers. In the target of a bachelor's degree or above, however, Altay students reach 88.0%, only 7 percentage points below the 95.0% of inland students (Fig. 1(a)), which indicates that Kazakh adolescents in Altay have shown a strong wish for intergenerational advancement.

(2) Intentions regarding the place of future development differ markedly. Among inland students, 65.0% clearly chose "definitely a large city or inland province", whereas the proportion among Altay students was only 36.0%; a further 20.0% chose to stay and develop in their hometown and 44.0% held the flexible attitude of "depends on future employment", presenting a more diverse pattern of regional choice than their inland peers (Fig. 1(c)).

(3) The strength of belief in education differs clearly. Across the four attitude items of Q9 (Table 2), the Altay group scored higher than the inland group on all four items, with an overall mean of 3.79 compared with 3.31 for the inland group. The gap was largest for "examples around me convince me that education is useful" (4.04 vs 3.30), followed by "a practical skill can also lead to a good life" (3.52 vs 3.10) and "the chance that education changes one's fate has grown" (3.76 vs 3.35).

(4) The direction of family educational support differs. Among Altay students, 80.0% said that their family was "strongly supportive" of developing special talents, 50 percentage points higher than among inland students (Fig. 1(b)). One possible explanation is that this is related to family educational views among the Kazakh that value traditional cultural skills; this is offered as an interpretation rather than as a finding, and existing studies have examined family factors in Kazakh education [2, 3].

5. Discussion

5.1. Differences from existing studies and their causes

Existing studies have mostly focused on problems such as insufficient resources, shortages of teachers and differences in educational quality in the educational development of ethnic minority areas [9, 10, 11], whereas this study finds that Kazakh adolescents in Altay already display fairly strong modern characteristics in educational views, ways of learning and future planning. The causes of this difference are mainly the following three.

(1) The research subjects differ. Existing studies have mostly been conducted from the perspective of the overall development of ethnic education or of education policy, and focus on the problems of regional education systems; this study focuses mainly on the educational experience of Kazakh adolescents themselves in the new era, and can therefore better reflect the change in the educational views of the new generation of students.

(2) The era and the environment differ. With stronger policy support for education, the universalization of compulsory education and the development of information technology, adolescents in ethnic minority areas have ever more channels for obtaining educational resources and external information, which makes their educational horizons and development choices more open.

(3) Regional and family factors differ. This study concentrates on Fuyun County in Altay, where educational conditions have improved continuously in recent years, and where most local families show a high level of support for further study and for development outside the area, which has also encouraged adolescents to form more positive and diverse development plans.

5.2. Limitations

Owing to the conditions and resources available for the fieldwork, each of the three methods carries bias and limitations of varying degree, which need to be taken fully into account when interpreting the findings.

(1) At the level of interviews and observation, the interviewees were not produced by random sampling but were contacted with the help of a local guide. Because a guide tends to introduce

families who are familiar and cooperative, the sample has a selection bias in its source. Specifically, the seven students interviewed all came from families whose economic conditions were in the middle to upper range locally. Of the two senior secondary students, one came from a family of middle to upper wealth and education whose eldest brother had already achieved good academic results in an inland province; the family of the other ran a farm guesthouse locally, gave the student 1,000 to 2,000 yuan of pocket money per month on average and could support the learning of several musical instruments. The families of most of the other students interviewed owned relatively large herds of livestock, and their economic situation was far better than the threshold for the minimum living allowance. This means that the interview and observation material mainly reflects the educational experience of adolescents from relatively advantaged families, and does not adequately cover the perspectives of low-income families, marginal households dependent purely on herding, or adolescents who have dropped out of school. In addition, observation was concentrated at summer pastures and settlement sites, and this limitation in time and space also means that differences in educational environment among townships and schools within the Altay area were not adequately grasped.

(2) At the level of the questionnaire survey, a similar structural bias exists. The questionnaire spread by snowball through the interpersonal networks of the interviewees and constitutes convenience sampling, which inevitably introduces homogeneity bias and voluntary response bias. Students willing to complete the questionnaire may themselves pay more attention to educational issues and hold more positive attitudes, and diffusion through chains of acquaintances leads to samples with similar social identities and views. Furthermore, neither sample reaches the lower bound of 30 responses commonly required for statistical analysis, with 25 valid questionnaires from Kazakh students and 20 from inland students. The central limit theorem underpins parametric tests only when the sample is sufficiently large (usually $n \geq 30$); with samples as small as these, the sampling distribution is unknown and unstable, the preconditions of t tests, F tests and similar parametric tests are not met, and all statistical analysis has exploratory significance only. The conclusions of this study therefore have no capacity for statistical inference about Kazakh adolescents in the Altay area or in Xinjiang as a whole.

In sum, the findings of this study present a local and situated educational reality rather than a universal pattern for the group. The three types of data are used throughout in the position of case presentation rather than population representation, and subsequent research is encouraged to expand the sample under a sounder sampling framework and to include families of diverse backgrounds, so as to test and supplement the preliminary conclusions of this study.

6. Conclusion

This study took Kazakh adolescents in the Altay area as its subjects and, through field observation, a questionnaire survey and field interviews, analysed the educational horizons and growth pathways of adolescents against the background of educational modernization. The findings are as follows.

(1) The educational modernization of the Altay area in recent years, for example the improvement of education policy, the improvement of school infrastructure, the strengthening of the teaching force and the building of educational bridges between inland provinces and Xinjiang, has noticeably improved the educational opportunities of Kazakh adolescents and provided diverse growth pathways; but only a small number of outstanding students are able to enjoy high-quality educational resources, and most students have not yet obtained access to better educational resources.

(2) The views of Kazakh families are gradually changing, and parents are more supportive of Kazakh adolescents receiving education and hold fairly open-minded attitudes towards their future development, which provides strong help and support for the future development of Kazakh adolescents; but a small number of Kazakh families have low expectations for their adolescents' education or are unable to provide effective help.

(3) Under the combined effect of school education, family support and policy guarantees, the educational horizons of Kazakh adolescents in Altay keep widening, their career choices are more

diverse, and their growth pathways are gradually shifting from the traditional single model towards further study, returning home to start a business and diverse employment; but some Kazakh adolescents are restricted in their choice of employment because they cannot obtain higher levels of education and resources.

(4) Kazakh adolescents show marked modern characteristics, with fairly strong modern features in ways of learning, information acquisition and future planning; their educational horizons and development goals have moved beyond geographical limits and show a fairly high degree of consistency with peers in the eastern coastal provinces.

On the basis of these findings, future educational development in ethnic minority areas should, while consolidating the achievements of universal access, further optimize the allocation of educational resources, strengthen school infrastructure, raise the level of the teaching force and improve the system of guidance for adolescents' further study and career development, so as to promote high-quality and sustainable development of adolescents in ethnic minority areas. Given the small and non-random samples described in Section 5.2, these conclusions are offered as a case presentation and are not statistical inferences about the wider population.

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