

УДК 005.342(571.51)

**Innovative Development of Krasnoyarsk  
Region Territories on the Basis  
of Service Centers Net  
of Kspu Named After V.P. Astavyev is a Possibility  
for Business-Model “Triple Spiral”  
by G. Etzkowitz Realization**

**Vladimir I. Kirko,  
Valeriy V. Beloshapkin and Elena N. Belova\***  
*Krasnoyarsk State Pedagogical University  
them. VP Astafeva  
89 Ada Lebedeva Str., Krasnoyarsk, 660060 Russia*

Received 06.08.2013, received in revised form 08.08.2013, accepted 12.09.2013

---

*In connection with Universities' affiliates closure in different towns of Krasnoyarsk region in the nearest time extreme deficit of qualified specialists of different specialties and different education levels is forecast. Especially this problem will be felt in North districts of Krasnoyarsk region where investment flow is directed to because of new field development of mineral wealth and the development of the North seaway. The only form to train and retrain the staff is distance education through specially developed resource centers. In this work the experience of Krasnoyarsk State Pedagogical University named after V.P. Astafyev in creation of its own net of resource centers is reviewed.*

*Keywords: distance education, specialized resource centers.*

---

At present the continuation of intensive adoption of north and Arctic territories of Krasnoyarsk region, Siberia and Far East has begun that was started in Soviet time [1]. The last was connected with new field development of mineral wealth, development of infrastructure providing transport highways of the Arctic Ocean and transport freight and passenger aviation traffic [2], creation of large hydroelectric (Boguchanskaya hydroelectric power station),

metallurgical (Boguchanskiy plant) and timber-processing complexes [3].

Thereupon the growth of needs in qualified personnel, specialists with specialized secondary and high education is predicted.

Even now industrial reclamation of north territories of the region by such companies as the public corporation “Vankorneft”, the public corporation “Polus Zoloto”, the public corporation “Rusgidro” and others is mainly

arranged as a shift work, the disadvantage of it is high employee turnover which is practically 30 % of staff personnel a year.

In Krasnoyarsk region there are 67 institutions of specialized primary education (SPE) (16 (24 %) in Krasnoyarsk) and 29 educational institutions of specialized secondary education (SSE) [4]). This number is not enough for more than 1.3 million of population captured by the economics. This deficit is clearer seen when taking into account the size of the region territory – the second large region of the country.

The main scientific and educational potential is concentrated in southern districts in the cities of Krasnoyarsk, Kansk, Achinsk and Minusinsk whereas the basic investment activity and industrial development are in northern ones.

In this work [5] it is shown that according to the Federal Service of State Statistics since 1990 till 2005 the number of pre-school and general secondary school institutions in northern districts of Krasnoyarsk region, Republic of Sakha (Yakutia) and Far East Federal County has practically two times reduced, that is explained by migration outflow of the population because of low living level in the North and impossibility to find a job in the territory or the lack of professional education. opportunity to get high professional education in the North is reducing because of the Universities affiliates closure (in Norilsk there is only one high educational institution – Norilsk Industrial Institute and there are some universities affiliates of other cities that are closing now by the example of Norilsk affiliate of KSPU named after V.P. Astafyev). Personnel hunger in the north of the region will grow.

Universities' disappearance from the territories contradicts G. Etzkowitz's business model [6] ("Triple Spiral") which supposes that their most favourable development of the territories will happen when there are conditions

of reciprocal interests of the universities, territory administrations and business. And the priority component (locomotive) is the University that must participate actively in all life spheres of the territories [7].

In the works [8-9] the mechanism of innovative development of administrative-territory establishments by creation of university together with their authorities and ventures of innovative development centers of the territories (business incubator) that would become catalysts of innovative development is suggested. Supposed mechanism would allow the University not only taking active part in social and economic development of the territories but also influencing political, social and cultural complicated processes connected with religious and ethnic diversity and comparatively unstable social and economic situation.

According to a "road map" [10] in Russia in 2014 it is supposed to start creation of multifunctional centers of applied qualification (MCAQ) in the territories. They must form conditions for dynamic reaction to the labour market and population's needs enquiries.

Under the condition of extreme deficit of educational staff the use of modern informational technologies and distance education is becoming urgent. It will allow the territories of the region with small size and density of population, lack of competent specialists and limited financial resources using possibilities of city educational structures and knowledge of highly qualified specialists. Especially it concerns locally situated detached settlements with native smaller peoples who are busy with traditional crafts.

At present education of children of senior school is held at boarding schools (Nosok settlement of Taimyr Dolgan-Nenets Municipal Area, Farkovo settlement of Turukhansk Municipal Area and Baikit settlement of Evenki Municipal Area). The main disadvantage of this

kind of education is that children are isolated from their environment and parents and not always can adopt under such conditions. Furthermore they cannot always get enough knowledge for successful taking of Unified State Exam and entering high educational institutions.

The effective solution of this problem could be suggested by the authors [11] development of “High North School” under Siberian Federal University (SFU). This is a new structure of SFU the aim of which is “active adaptation (social adaptation) of youth of northern native smaller peoples to social environment of a modern city in the form of accelerated preparation for entering an educational institution (specialized primary, specialized secondary or high professional)”.

Urgency of distance education is becoming more important from year to year as it provides all groups of population with prospects for education without isolation from usual environment and their activity.

Researches made in 2010-2012 when working with grants [12-13] showed that practically in every northern settlement there is no wide-bane Internet (Uyar town, Nosok settlement of Dolgan-Nenets Municipal Area, Surinda and Yessey settlements of Evenki Municipal Area, Sovetskaya Rechka settlement of Turukhansk Municipal Area and so on). In this sense the development of informational structures of the North of Krasnoyarsk region is substantially behind the structure of Arkhangelsk territory and Yamal-Nenets Autonomous Area [15]. This fact doesn't allow organizing distance education, rendering consulting and informational services to the population of the territories.

In the network of the program of development initiated by Krasnoyarsk State Pedagogical University named after V.P. Astafyev (KSPU) in the territory of Krasnoyarsk region resource centers have been and are being created that

further could be reorganized into MCAQ and be reviewed as future business incubators of the territory.

The map of Krasnoyarsk region with location of functioning and supposed to creation resource centers of KSPU are shown in Fig. 1.

Even now the resource centers are equipped with wide-band Internet or individual satellite communication and also with computer classrooms where the educational process has already started.

In Fig. 2 there are pictures of the resource centers of KSPU named after V.P. Astafyev in Shushenskoe urban settlement (a) and Borodino town (b).

The resource centers involve practically all towns and large settlements of Krasnoyarsk region. Direct satellite communication with Tomsk is put into practice.

Created and being created resource centers allow making educational processes:

- individual in telecommunication On-line regime;
- for groups of students in telecommunication On-line regime;
- individual or group in the regime of TV record playing of lectures for an individual student (or videodisk);
- trainings;
- computer literacy and the Internet work teaching;
- master-classes;
- consultations (law, medical, technological and so on).

Besides they can provide all educational and scientific institutions of Krasnoyarsk region with the possibility to realize their educational and consulting services through the structure of the resource center (high educational institutions, colleges and so on).

The main consumers of the resource centers services are supposed to be:



Fig. 1

- enterprises and institutions located in the territories;
- people with limited abilities who by any reason cannot be trained at regional or district centers (military, juveniles' mothers, students with limited financial or physical abilities and pensioners);
- all categories of specialists (engineers, clerks, workers, teachers, schoolchildren and kindergarten teachers) willing to have professional retraining or advanced training with getting an appropriate diploma or certificate of the State Standard;
- all categories of citizens willing to have consultations with highly qualified specialists;

- educational and scientific institutions willing to realize their educational and consulting programs in the territory of Krasnoyarsk region.

### Conclusions:

Under the conditions of growing investment intensity in the North of Krasnoyarsk region growth of extreme deficit in qualified specialists and workers is predicted.

Closure of educational institutions affiliates in the North will lead to the deficit reinforcement in personnel and to possibility limitation of innovative development of locally situated detached settlements.

The way out from the situation could be formation of the net of multifunctional centers of



Fig. 2

applied qualification on the basis of the resource University named after V.P. Astafyev in the centers of Krasnoyarsk State Pedagogical territories.

### References

1. Adrianov V.A. *Formirovanie transportnoi infrastruktury Rossiiskogo sektora Arktiki v 21 veke* [Formation of transport infrastructure of Russian sector of Arctic in the 21 century] *Arktika i Sever*, (9). 2012. pp. 118-139.
2. Grant FTsP (Federal Purpose Program) *Razrabotka nauchnykh osnov formirvaniia struktury regional'noi innovatsionnoi platformy i mekhanizmov ee sozdaniia na osnove vzaimodeistviia avtonomnykh obrazovatel'nykh ucherezhdanii s tettiitorial'no-administrativnymi obrazovaniiami (na primere Krasnoiarskogo kraia i Sibirskogo federal'nogo universisteta)* [Development of scientific basis for formation of the structure of innovative platform and mechanisms of its creation on the basis of interaction of autonomous educational institutions with territorial-administrative establishments (by the example of Krasnoyarsk region and Siberian Federal University)]. 2010-2012. Scientific supervisor is doctor of physics and mathematics sciences, professor V.I. Kirko.
3. Grant of Krasnoyarsk regional fund of science and scientific activity *Formirovanie struktury regional'nogo innovatsionnogo klastera i mekhanizmov ee sozdaniia na osnove vzaimodeistviia avtonomnykh obrazovatel'nykh ucherezhdanii s TAO (na primere Krasnoiarskogo kraia i Sibirskogo federal'nogo universisteta)* [Formation of the structure of regional innovative cluster and mechanisms of its creation on the basis of interaction of autonomous educational institutions with territorial-administrative establishments (by the example of Krasnoyarsk region and Siberian Federal University)]. 2010-2012. Scientific supervisor is doctor of physics and mathematics sciences, professor V.I. Kirko.
4. Henry Etzkowitz. *Troinaia spiral'. Universitety – predpriiatia – gosudarstvo. Innovatsii v deistvii* [Triple spiral. Universities – enterprises – state. Innovations in action] Tomsk: Tomskii gosudarstvennyi universitet sistem upravleniia i radioelektroniki Publ., 2010. 238p.
5. Karlova O.A., Koptseva N.P. *Novoe budushchee Sibiri: ozhidaniia, vyzovy, resheniia* [New future of Siberia: expectations, challenges, and decisions] Krasnoyarsk: SFU, 2013.
6. Kirko V.I. *Sozdanie severnogo biznes-inkubatora s uchetom sotsiokul'turnykh osobennostei territorii* [Creation of north business incubator taking into account social and cultural peculiarities of the territories]. *Innovatsii*, №12(158), 2011, pp. 101-102.

7. Moskvich U.N. Novaia rol' universitetov v razvitii regionov i novykh otraslei [New university role in development of regions and new branches]. Krasnoyarsk: *Vestnik Krasnoyarskogo gosudarstvennogo pedagogicheskogo universiteta V.P. Astaf'eva*, №1(23). 2013, pp. 20-24.

8. Nozdrenko E.A. *Adaptatsiia indigennoi molodezhi severnykh territorii k obucheniiu v Sibirskom federal'nom universitete* [Adaptation of indigent youth of northern territories to education in Siberian Federal University]. *Pis'ma v Emissia Offline*, 2012. ISSN: 1997-8588

9. Pimenova N.N. *Problemy obrazovaniia detei korennykh malochislennykh narodov Sibiri i Severa v Krasnoiarskom krae* [Problems of children's education of native smaller peoples of Siberia and the North in Krasnoyarsk region] *Innovatsii v nepreryvnom obrazovanii*, (5). 2012, pp. 12-19.

10. *Raspotiazhenie Pravitel'stva RF № 2620\_r ot 30 dekabria 2012 goda* [RF Governmental Decree № 2620\_p from 30 December 2012].

11. Timoshenko A.I. *Proekti territorial'no-proixvodstvennykh kompleksov v Arktike:sovetskii opyt i sovremennost* [Projects of territory-industrial complexes in Arctic: soviet experience and the present] *Arktika i Sever*, (9). 2012. pp. 140-152.

12. Urkov D.V. *Upravlenie regional'noi informatizatsiei* [Administration of regional informatization] *Arktika i Sever*, (8). 2012. pp. 77.

13. Verhovets S.V. Rol' federal'nykh universitetov v formirovanii regional'noi innovatsionnoi infrastruktury (na primere Sibirskogo frderal'nogo universiteta) [Federal universities role in formation of regional innovative infrastructure (by the example of Siberian Federal University)] *Innovatsii*, №10(144), 2010, pp.1-5.

14. [http://www.krao.ru/rb-topic\\_t\\_301.htm](http://www.krao.ru/rb-topic_t_301.htm).

15. [www.yamal-spb.ru/32](http://www.yamal-spb.ru/32).

16. The research was realized under financial support of Krasnoyarsk fund of science and scientific-technical activity support.

**Инновационное развитие территорий  
Красноярского края на базе сети  
сервисных центров КГПУ им. В.П. Астафьева –  
возможность реализации бизнес-модели  
«Тройной спирали» Г. Ицковича**

**В.И. Кирко,  
В.В. Белошапкин, Е.Н. Белова**  
*Красноярский государственный педагогический университет  
им. В.П. Астафьева  
Россия 660060, Красноярск, ул. Ады Лебедевой, 89*

---

*С закрытием филиалов университетов в различных городах Красноярского края в ближайшее время прогнозируется острый дефицит квалифицированных специалистов различного профиля и различного уровня образования. Особенно остро ощущают проблему северные районы Красноярского края, куда в основном направлен инвестиционный поток в связи с разработкой новых месторождений полезных ископаемых и развитием Северного морского пути. Единственной формой подготовки и переподготовки кадров становится дистанционное обучение через специально созданные ресурсные центры. В статье рассмотрен опыт Красноярского педагогического университета им. В.П. Астафьева в создании собственной сети ресурсных центров.*

*Ключевые слова: дистанционное образование, специализированные ресурсные центры.*

---