

Identifying the Challenges of Differences in Models of Online Databases

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Summary:

This paper presents a survey of approaches to electronic student data management and electronic access to student records using the examples of four models that are familiar to international credential evaluators: Sweden, Ukraine, the West African Examinations Council (WAEC) and the United States.

For each model, contributors describe organizational aspects of the educational system that impact student data management, such as funding and administration of electronic data systems, operational issues in data management and access, legal considerations such as who owns the data and who controls the data, access issues relating to third party requests for verification of student records, and the issues of fraud and corruption associated with the particular model and how they relate to the management of student records.

Each section also identifies challenges associated with the use of electronic data management systems in the model presented. These challenges may represent obstacles to be overcome in the development of an international approach to electronic accessibility and exchange of student data.

Sweden

Contributed by Erik Johansson, Swedish Council for Higher Education

Country type:

Centralized state; centralized student database; lax privacy laws; non-fee-based; low level of fraud and corruption

How to verify Swedish academic credentials – current situation

Any individual or organization that wants to verify the authenticity of Swedish academic credentials should turn to the awarding institution. It is the awarding institution that owns the student data. According to the Public Access to Information Act *Offentlighetsprincipen* of 1766 anyone has the right to obtain official documents from public authorities. Thus, Swedish as well as foreign individuals, organizations, associations etc. may obtain this information free of charge.¹ Swedish state or non-state institutions may be contacted by email, mail, or fax. They can also be contacted by phone during working hours. Correspondence in English is generally accepted. The ability to correspond in other foreign languages (e.g. French and German) may vary depending on the institution. Contact information for verification is in some cases printed on the credentials.²

Sweden also has the *Ladok* national student database that contains student data from a majority of Sweden's 50 higher education institutions. The data stretches (in some cases) back to the 1970s.³ Ladok is owned by the higher education institutions and all institutions have access to each other's student data. The latter guarantees the secure transfer of credits and facilitates student mobility. Additionally, most institutions provide a service called Ladok Online *Ladok på webb* (LPW.) LPW makes it possible for a student to log on to a student national data service and print a copy of his/her transcript. The transcript contains all the student's courses, grades, and degrees earned at different institutions. The transcript also comes with a transcript verification code and the student's Swedish civil registration number *personnummer*. A prospective employer can check the authenticity of the transcript by entering the code and civil registration number on the university's website.⁴

Challenges

Despite this open access system with lax privacy laws, few stakeholders seem to have knowledge of how to check the authenticity of academic credentials. This situation is reflected in a 2015 survey conducted by the Stockholm Chamber of Commerce that showed that only 50 % of all Swedish employers *claim* that they check educational background when hiring people.⁵ If this is the case in Sweden, even fewer people probably know about this abroad. This goes on, despite the purchase and use of fake Swedish credentials both in Sweden and outside its borders.⁶

This is no surprise. The institutions do not provide information on verification of credentials in a systematic and consistent way and do not fully appreciate existing digital tools for verification. For example, only Uppsala University and maybe a handful other institutions print information on their credentials informing about how to verify a degree. Furthermore, no institution website highlights its verification service and the information regarding Ladok Online is (for some

¹ With the exception of information relevant to national security etc.

² For example Uppsala University prints this information on the degree

³ Email correspondence with Mauritz Danielsson, CEO of Ladok [March 16, 2017]

⁴ See for example the verification service provided by the Royal Institute of Technology (KTH): https://www.kth.se/student/minasidor/intyg/verifiera.jsp?!=en_UK

⁵ Rekrytering: Bemanningsföretagen får göra jobbet, Stockholms handelskammars analys: 2015-05

⁶ See for example www.betygsakuten.se that sells fake Swedish and US credentials.

unknown reason) hidden. Only students and insiders know about Ladok Online, whereas employers and other vital stakeholders are kept in the dark.

The proliferation of Swedish fake degrees constitutes a threat to the core values of Swedish society, including trust in public institutions and the concept of meritocracy. Furthermore, fraudulent credentials undermine the market value of Swedish universities, Swedish university degrees, and Swedish university alumni.

A combination of academic autonomy gone wild, unawareness, and inability to understand the issues at stake have led to a fragmented verification system that is not in touch with individual or societal needs of the 21st century.

What is to be done?

In the short run, the institutions should get together and actively promote verification of academic degrees based on existing technology. Firstly, this can be done by printing information on how to verify the authenticity of credentials on degrees and transcripts (see Uppsala University) and highlight this information (including Ladok Online) on their websites as well. Secondly, involve stakeholders such as the Stockholm Chamber of Commerce, the Confederation of Swedish Enterprise, the Swedish Agency for Government Employers, and the major unions in a campaign to encourage Swedish employers to actually verify degrees. Finally, go digital on a full-scale!

With amazing people, a low level of corruption, a digital infrastructure second to none, a state in good fiscal condition, and a centralized student database, everything should be in place for creating the best digital student data verification service ever created. Only three things are apparently missing: awareness, sense of responsibility, and political will. Unfortunately, the latter ingredients are essential.

Thanks to awareness, sense of responsibility, and political will less privileged countries such as Ecuador and Kyrgyzstan have created online national verification services that work. Also Sweden's oil-rich neighbor to the west, the Kingdom of Norway, has recently launched the Norwegian Diploma Registry *Vitnemålsportalen*.⁷ In this particular case it was not the Norwegian institutions that stood for the initiative. Instead it was the Norwegian Ministry of Education and Research that showed political will. The Norwegian example should work as an inspiration for Sweden.

Thus, motivated by others, it is now time for the Swedish academic community to usher into the 21st century by creating an online verification service that considers the needs of all stakeholders, including employers, employment screening companies, and assessment services both in Sweden and abroad. This both utopian and realistic project should have the following parameters:

- Free of charge;
- Multilingual (minimum Swedish and English);
- Based on mature technology and internationally accepted standards (e.g. pdf.);
- Administered by Ladok;
- Be in line with national laws and be in tune with common privacy laws abroad;
- Be embraced by the higher education institutions; and
- Funded by and under the custodianship of the Swedish Government.

⁷ See <http://www.fellesstudentsystem.no/english/applications/diploma-registry/index.html>

Ukraine

Contributed by Ann M. Koenig, AACRAO International

Country type:

Centralized state; centralized database for education; privacy law for personal data; non-fee-based; high level of fraud and corruption

Ukraine has a highly centralized educational system that is overseen by the Ministry of Education and Science (MOES). The MOES is the central body of executive power for education and is directed by the Cabinet of Ministers of Ukraine. Educational standards are codified by national law.

Document fraud and development of electronic education portals

Document fraud is a big problem in Ukraine. In the 2016 Transparency International Perceived Corruption Index,⁸ Ukraine holds place number 131 among the 176 countries ranked in a list in which place number one is held by the country with the lowest level of perceived corruption. Ukraine with its overall score of 29 out of 100, on a spectrum in which 90-100 is considered “very clean” and 0-9 is considered “highly corrupt”, is in the “corrupt” zone. The education sector is considered to be one of the most vulnerable arenas for fraud, as the pay for instructors and administrators is relatively low and there is ample opportunity to require “payment” from students, with few, if any, consequences.⁹

When Ukraine declared independence from the USSR in 1991, some of the issues generally associated with the former Soviet region did not disappear. The prevalence of corruption and document fraud continued. For several years independent Ukraine continued to use Soviet-style educational documentation – “diplomas” consisting of preprinted forms hand-filled by calligraphers and pasted into small booklet covers. A “diploma addendum”, a sort of transcript, was a one-page pre-printed form, in a size that could be folded and tucked neatly into the diploma booklet, onto which student data – subjects, grades, and sometimes also hours per subject - was typewritten or handwritten, using both sides of the paper. Although student records were maintained locally in the institution’s administrative offices and were reported to a central office at the MOES, there was no viable system, as well as very little intrinsic motivation, to verify the authenticity of documentation to a third party, if requested. The opportunity for document fraud and corruption of higher education personnel involved in student data management was rampant.

As Ukraine began to look toward Western Europe, the need increased for an electronic central portal to manage and share educational data and better safeguard the integrity of academic documentation. In 1996, the Cabinet of Ministers passed an order “On Improving the Protection of Educational Documents”. This action resulted in the creation of the “*IBS Osvita*” (“Information Production System Osvita”).¹⁰ “Osvita” came online in 1998, providing the Ukrainian education community, at all levels of education, with a tool for electronic data management.

The material available on the “Osvita” site was made available in English and Russian as well as Ukrainian, to support Ukraine’s growing interest in internationalization. The “Osvita” site included information about the Ukrainian educational system, links to sample completion documents from all levels of education, links to relevant regulatory documents, links to a

⁸ http://www.transparency.org/news/feature/corruption_perceptions_index_2016#table

⁹ *In Ukraine’s Universities, Trading Bribes for Diplomas*, Politico, 2/1/16: <http://www.politico.eu/article/trading-bribes-for-diplomas-in-ukraines-universities-taxes-transparency-education-corruption/>

¹⁰ <https://osvita.net/en/verificationdoc/>

directory of higher education institutions, and, for use by education administrators at all levels in Ukraine, a portal through which to place orders for the production of the academic documents needed for their students.

Hand-in-hand with the development of “Osvita” came the digital production of state-standard completion documents based on the data in the electronic database. The first generation of digitally-produced documents was issued to graduates in 1998, printed on security paper with several types of security features, including micro texts, micro nets, watermarks, holograms, images visible in ultraviolet light, and lamination of the document to deter alterations.

The first electronic credential verification system: “Osvita”

Built into “Osvita” was a tool invaluable to educators within Ukraine and to administrators, employers and credential evaluators around the world – a no-cost electronic system for verifying the authenticity of credentials. However, the “Osvita” verification system was available only in Ukrainian, and only included documents awarded to Ukrainian citizens. The format for diplomas awarded to non-Ukrainian citizens studying in Ukraine is different from the one given to Ukrainian citizens, and the diplomas for non-Ukrainian citizens were not included in the “Osvita” database. The “Osvita” database also did not include diplomas awarded by military institutions. Those types of credentials had to be verified directly through the institution.

For a third party to gain access to the “Osvita” verification system, a request for registration was required, which included providing a user name, password, and email address. Once registered, users could access the system via username and password. The verification request process involved entering the following data, in Ukrainian: serial letter and document number from the document, document holder’s name and an anti-robot verification code that popped up on the screen. The possible results of the verification request were either a sentence in red typeface stating, in Ukrainian, that a document with the given parameters was not in the database, i.e. not verified, or a statement in green typeface stating that the document with the given parameters was verified and indicating the document type.

The next generation: “EDEBO” and “Inforesurs”

A 2010 resolution of the Cabinet of Ministers approved the MOES’ request to develop a new unified data management system for public information and for the production of academic documents.¹¹ Ukraine’s July 2014 “Law on Education” then laid the legal groundwork for the changes required to implement the provisions of the Bologna process fully, some eleven years after Ukraine had signed the Bologna agreement. New document formats were introduced, including a “European diploma supplement” to replace the “diploma addendum”, and the new electronic data management platform was established, the “*Edina Derzhavna Elektronna Baza z pitan Osviti*” (Single/United State Electronic Database in the field of Education (EDEBO)).¹² “EDEBO” houses several electronic resources, including an open data Register of Higher Education Institutions, and a student document register with an online verification system called “*Derzhavne Pidpriemstvo ‘Inforesurs’*” (“State Enterprise [SE] ‘Inforesurs’”).

When students apply for admission to higher education, many have an option to either enter their data directly into the “Inforesurs” system or to submit a paper application. Students in some categories are still required to use a paper application. Statistics from “Inforesurs” show that 63% of 2016 higher education applicants used the electronic system, up from 39% in 2015.¹³ In accordance with the 2010 law on personal data protection, updated in 2016,¹⁴ during

¹¹ <https://osvita.net/en/legislation/resolution-of-the-cabinet-of-ministers-of-ukraine-%E2%84%96752/>

¹² <http://mon.gov.ua/edebo/vidkriti-dani/>

¹³ <http://www.inforesurs.gov.ua/>

¹⁴ <http://zakon2.rada.gov.ua/laws/show/2297-17>

the registration process students must give their consent for the release of personal and educational data. This consent is valid in perpetuity. According to the 2014 “Law on Education”, individuals have complete access to all information about them contained in “EDEBO”.

The “Inforesurs” verification system is available free of charge to third party users, just as the “Osvita” system was, and requires the same data entry from the user as the “Osvita” system did. The results are shown in the same way. However the “Inforesurs” database only includes credentials issued since 2015, and like its predecessor “Osvita”, the “Inforesurs” system does not include diplomas awarded to non-Ukrainian citizens or diplomas awarded by military institutions.

Challenges for the non-Ukrainian third-party user

While the development of an online verification system had the potential to help detect academic document fraud, a significant challenge presented by the “Osvita” verification system was that it was available only in Ukrainian and required the data to be entered in Ukrainian, in a specific format, since the data entered had to match the data in the database exactly in order to yield the green “verified” result statement. If the user was not skilled at reading or typing Ukrainian, best practice demanded devising a way to understand what was required as far as data entry (e.g. use of an online translator), carefully producing the Cyrillic characters to enter the required data, and then carefully proofreading the data entered if the result came back as the statement in red, “not verified”. Sometimes one had to repeat the process several times, with careful typing in Ukrainian, before the green “verified” statement would appear. If the green statement never appeared, the next step was to contact the issuing institution directly with a verification request, a procedure that generally could not be relied upon to produce results either.

For the registered third party user wishing to obtain verification of an academic credential through the new “Inforesurs” system, the same challenge remains - entering all of the required data correctly in the Ukrainian language. The additional challenge is that “Inforesurs” only includes credentials awarded in 2015 and beyond. The “Osvita” system, which housed data for credentials awarded from 1998 through 2014, is no longer functioning.

Additional source for verification of Ukrainian credentials: Ukraine ENIC

Fortunately there is an additional MOES-sponsored resource to assist with the verification of Ukrainian credentials: the “*Derzhavne Pidpriemstvo ‘Informatsijno-Imidzhevnij Tsentr’*” (“State Enterprise [SE] ‘Information-Image Center’”), also known as the Ukraine ENIC.¹⁵ The Ukraine ENIC is a member of the ENIC-NARIC network of national information centers established in 1994 by the Council of Europe and UNESCO to support the goals of European qualification recognition policies and practices.

Since the passage of the 2014 “Law on Education” the Ukraine ENIC has developed into a responsive partner in providing information on Ukrainian education and verification services. While educational institutions themselves can still verify documentation and can be contacted if an attempt at using the online verification is not successful, documents issued from 1998 through 2014 can be verified through the Ukraine ENIC by email request. The Ukraine ENIC can contact the institution for verification and then certify the verification, as well as verify an apostille.

¹⁵ <http://enic.in.ua/index.php/ua/>

Online verification tools vs. high level of corruption and fraud

The largest challenge in evaluating academic documents from Ukraine is the prevalence of corruption and fraud, including document fraud. While the Ukrainian MOES has created a centralized database for academic data and verification of individual academic credentials that has the potential to help third-party users be confident that the documents they receive are authentic, the problems of document fraud and widespread corruption in higher education remain. The “Inforesurs” verification system can be a useful tool, if the user learns how to overcome the limitations it presents.

West African Examinations Council: The Gambia, Ghana, Liberia, Nigeria, Sierra Leone

Contributed by LesLee Clauson Eicher, AACRAO International

System type:

Centralized regional, secondary education database administered nationally within a regional framework; no privacy laws; fee-based (negligible amount); high level of fraud and corruption

The origins of the West African Examinations Council

In 1948, four countries in West Africa met with British examination boards to discuss the idea of creating a separate, West African school examinations board to replace the British examination boards that until then had conducted school examinations. In 1952, the West African Examinations Council (WAEC) was formed with charter countries The Gambia, Ghana, Nigeria, and Sierra Leone. Liberia joined the group in 1974. The goal of the newly-established WAEC was to conduct secondary school examinations and award certificates that were not lower in standard than those awarded in the UK. WAEC conducts three types of examinations: international (WASSCE and its predecessors), national (various levels of exams in the member countries, excluding Nigeria), and other types of examinations conducted in collaboration with or on behalf of other examination bodies.

Current status of WAEC examinations data

It is unclear from research conducted online who, or which body, owns the student examination data that is included in the WAEC database. Must the student or parent sign a release for his/her data to be included in the database? Is the system an opt-in system? An opt-out system? Is permission not required at all? A request for further information has been sent to an official in the WAEC Nigerian National Office.

The problems: examination malpractice and fraud

The incidence of WAEC examination malpractice and certificate fraud in and outside of the WAEC region continues to challenge officials. In their 2015 academic paper, authors C.M. Eguridu, Head of the Nigeria WAEC Office, and O.F. Dacosta, Deputy Registrar/Officer in Charge, also at the Nigeria WAEC Office, define examination malpractice as “any irregular behaviour exhibited by candidates or anybody charged with the responsibility of conducting an examination in and outside the examination hall, before, during and after such examination” and include a three-year comparison of incidence of examination malpractice in the May/June (2012-2014) WASSCE in Nigeria¹⁶:

TYPE OF MALPRACTICE	% OF CANDIDATES INVOLVED		
	2012	2013	2014
Bringing foreign materials into the examination hall	0.49	0.36	0.21
Irregular activities inside/outside the hall	1.69	1.72	1.32
Impersonation	0.17	0.14	0.12
Insult/Assault on Supervisors, Invigilators and other examination officials	0.03	0.03	0.04
Miscellaneous/New Cases	0.29	0.14	0.11
TOTAL	2.67%	2.39%	1.80%

¹⁶ *The Impact of Technology on the Validity of Assessment in Large Scale Public Examinations - the West African Examinations Council's Experience*, C.M. Eguridu, Head of the Nigeria WAEC Office, O.F. Dacosta, Deputy Registrar/Officer In Charge, Test Administration Division, Nigeria WAEC Office, 2015.

Measures to ensure integrity and combat fraud

The incidence of WASSCE fraud within the WAEC countries, and around the world, is high. Individuals continue to forge, sell, alter, and manufacture documents for sale and for personal use. Officials in these countries are aware of the problem, and have taken measures to prevent it. The systems they have put in place are:

(a) Online result checker and verification (see below):

The online result checker and verification solutions were developed to assist in giving candidates, universities, and employers direct access to examination results and also verify results from anywhere in the world at any time. Payment for the service is by purchase of scratch cards or e-payment within WAEC's application window using a credit card. The examination years included in the online result checker vary by country. In The Gambia, one can verify certificates back to 1993. In Ghana, results are available from 1990 onward. In Liberia, the newest member of WAEC, online verification began in 2014. Nigerian results may be verified back to 1991. Finally, in Sierra Leone, verification is available from 1993 on.

(b) Improved security features on WAEC certificates:

In order to deal with the challenge of counterfeit certificates, WAEC introduced the following additional security features:

- i. Photo embossment: In 2003, WAEC launched the embossment of candidates' photographs on certificates. With the implementation of this feature, WAEC saw a drastic reduction in incidences of impersonation during examination sittings.
- ii. Quick Response (QR) codes: The QR code displays a candidate's photograph, biodata, examination details and results. The QR code functions even on a photocopy of the certificate.

(c) CIVAMPEMS (Candidates' Identity Verification, Attendance, Malpractice, and Post Examinations Management System): Launched in 2015, the software loaded on this hand-held device gives the examination official the capability to generate real-time reporting of the examination day processes. After a student registers online for an exam, his or her information is gathered in the software to create a profile, which includes name, school, date of birth, subject tests, and photograph. That data is stored in CIVAMPEMS, which generates a coded ID card that is sent to the examinee's school. On testing day, examination officials use the hand-held device to view each student's photo and read the data encoded to the card, compare the student's appearance with the image and text printed on the card's front, and thereby confirm that he or she is indeed the test-taker and not an impersonator.

How to verify WAEC academic credentials

Any individual or institution who wishes to determine the authenticity of a secondary-school leaving certificate administered by WAEC may do so. Results can be checked, confirmed, or verified.

1. Result Checking: This allows the candidate to view his/her results online.
 - The examination-taker may purchase a "scratch card," which costs the equivalent of about \$3US. The student may use one scratch card to verify the same exam 3-5 times (depending on country). The scratch card contains a PIN (personal identification number) and a serial number. S/he may share these numbers with whomever s/he wishes, and along with the examination date and the examination number (= "candidate number"), the certificate's authenticity can be verified using the Online

- Result Checkers, which are organized and monitored nationally by each of the five participating countries.
2. Result Confirmation: This allows the candidate to request that his/her results to be sent to a recipient by post.
 - The Council issues statements of results (Confirmations of Results) which are as valid as the certificate.
 3. Result Verification: This allows organizations or institution to request that a candidate's results be verified and the verification result sent to a recipient by mail.
 - Verification of Results is not available to individual applicants but only to organizations and institutions who want to authenticate the examination results of a prospective student or employee. The requester must submit photocopies of the documents presented by the student or employee to the Council. The fee for each document is the equivalent of about \$0.66US.

Challenges

Despite efforts to safeguard the examination system against fraud, the number of fake certificates circulating in Africa and abroad remains a significant problem. Those who practice due diligence and take advantage of the security measures put in place by WAEC can be reasonably assured of document authenticity. However, should bogus certificates continue to be produced, sold, and used, it will ultimately compromise the validity and integrity of the examination process itself.

Resources

WAEC Headquarters: <https://www.waecdirect.org/>.

WAEC Gambia: <http://www.waecgambia.org/>.

WAEC Ghana: <http://www.ghanawaec.org/>.

WAEC Liberia: <http://www.liberiawaec.org/>.

WAEC Nigeria: <http://www.waecnigeria.org/>.

WAEC Sierra Leone: <http://www.waecsierra-leone.org/>.

CIVAMPEMS, Botosoft Technologies: <http://botosoft.com/solutions/civampems/>.

The Impact of Technology on the Validity of Assessment in Large Scale Public Examinations - the West African Examinations Council's Experience, C.M. Eguridu, Head of the Nigeria WAEC Office, O.F. Dacosta, Deputy Registrar/Officer In Charge, Test Administration Division, Nigeria WAEC Office, 2015.
(http://www.iaea.info/documents/paper_3fc7323a2.pdf)

USA

Contributed by Julia Funaki, AACRAO International

Country type:

Federal state with decentralized education administration; strong free-market economy; strong student data privacy law; medium level of fraud

Education as Responsibility of the U.S. States

Education in the United States, and in particular higher education, is shaped by three American philosophies and foundations: limited government influence; capitalism; and equal opportunity and social mobility.¹⁷

The United States of America is composed of 50 states, 5 territories, and the District of Columbia. The U.S. Constitution does not mention “education”, since it was foreseen by the founders of the country that education should be the responsibility of the states and local governments. Thus, each U.S. state has the authority to implement its own educational policy as long as that policy does not violate the U.S. constitution or federal law. As a result, education in the U.S. is highly decentralized.¹⁸ Public and private education thrive side-by-side. There is no system for “recognition” or “authorization” of higher education institutions by the federal government. Instead, the authority to grant degrees is conferred on public institutions by state governments, and on private institutions by their boards of directors or other steering entities. Higher education institutions typically seek accreditation as a means of quality assurance by a third party and a basic indicator of meeting specific minimum standards.¹⁹

The Role of the U.S. Department of Education

In 1979 legislation creating the U.S. Department of Education (DoE) was signed into law by President Carter. The DoE is not a “ministry of education”. It is involved in education at the national level in a variety of ways: implementing laws related to federal funding for education, collecting data and overseeing research on America’s schools and sharing that information with the public, identifying major problems in education and focusing attention on them, and enforcing federal laws prohibiting discrimination in institutions or programs that receive federal funds. It does *not* accredit or recognize higher education institutions or their programs. The DoE does, however, review the many accrediting organizations for approval. Higher education institutions must be accredited by a DoE-approved accreditor in order to gain access to federal funding. “When the U.S. Department of Education officially recognizes an accrediting organization, it certifies that the organization adequately monitors quality in areas mandated by the federal government, such as fiscal soundness and managerial competence, fair admissions and recruiting practices, and evidence of student success.”²⁰

The Role of the Registrar

Despite the fact that higher education in the U.S. is decentralized, there is a centralized approach to student recordkeeping within each institution. This system is maintained in a central office that is generally called a “records and registration office”, also known as the “registrar’s office”. The “registrar’s office” is the official manager of student data. Historically, the functions of the registrar grew organically as higher education institutions emerged and expanded. In 1910 a professional association of educators came together and formed the American Association of Collegiate Registrars (AACR). In 1934, the AACR’s Committee on Association Policy defined the

¹⁷ American Council on Education. (2001). A brief guide to U.S. higher education. Washington, DC: American Council on Education.

¹⁸ AACRAO EDGE (Electronic Database for Global Education): United States Profile.

¹⁹ Ibid., Overview.

²⁰ American Council on Education. (2001). A brief guide to U.S. higher education. Washington, DC: American Council on Education.

functions of the registrar in three broad areas: admissions, student records, and interpretation of student records, including all studies based on records.²¹ The registrar serves as the guardian and verifier of student records and the gatekeeper and advocate of admissions. ²² In the U.S., the registrar's office is responsible for verification of student records.

Expansion of the Registrar's Role and the Emergence of Electronic Exchange of Data

In the years following World War II, enrollment in colleges and universities increased dramatically, resulting in increased importance of the admissions officer in recruiting, evaluating, and admitting students. In 1949 the AACR voted to add "and Admissions Officers" to its name, resulting in the new acronym AACRAO.²³ "The members of AACRAO create and control the active student record. Long before most college and university archives existed, admission officers and registrars were confronting the issue of records retention."²⁴ In 1960, AACRAO published the first *Retention of Records: A Guide for Retention and Disposal of Student Records*.²⁵ Since its earliest days, AACRAO has addressed best practices in assessing U.S. student records, and has been a leader in providing training on the educational systems and standards in other countries for international admissions.

AACRAO's Standardization of Postsecondary Education Electronic Data Exchange (SPEEDE) was formed in 1988, when computers were still new enough that most people did not own a home computer. "The development of a standard format and server network for the exchange of electronic records was a truly visionary achievement resulting in the first SPEEDE Electronic Data Interchange (EDI)."²⁶

The Postsecondary Electronics Standards Council was founded in 1997 as an umbrella organization for SPEEDE and other standards within higher education.²⁷

Third-Party Record Management Services

Given the decentralized nature of the US education system, there is no one centralized database that holds records for all students in the nation, as in some countries. A student's official records are maintained by each institution s/he has attended. However the combination of decentralization, the free market economy, and the mushrooming of computer networks and data systems, have led to the development of third-party contractors offering services to institutions that include the electronic exchange, management and verification of academic records. These third-party contractors include for-profit and non-profit, commercial, organizational, and governmental entities. Institutions that do not have the resources or the desire to handle records management processes in-house may turn to a contractor for those services.

The reasons why an institution may opt to outsource a particular service are many and diverse. There is no mandate or policy that all institutions must follow regarding how or why to outsource. Growth in higher education has been accompanied by growth in the number of contractors and the services they provide. These services exist only due to institutions allowing access to their records and data. Because student recordkeeping and data management are the responsibility of the registrar, the registrar's office is typically the decision-maker in these

²¹ Preinkert, A.H. 1940. *The Work of the Registrar: A Summary of Principles and Practices in American Universities*. AACR. P. 2. ----. 2005. *The Work of the Registrar: A Summary of Principles and Practices in American Universities*. Washington, D.C.: AACRAO.

²² Ibid., 202.

²³ MARKS, DONALD D. "AACRAO'S 'GUIDE FOR RETENTION AND DISPOSAL OF STUDENT RECORDS': A CRITICAL REVIEW." *The Midwestern Archivist*, vol. 8, no. 1, 1983, pp. 27-33., www.jstor.org/stable/41101582.

²⁴ Ibid., p. 27.

²⁵ American Association of Collegiate Registrars and Admissions Officers, *Retention of Records: A Guide for Retention and Disposal of Student Records* (Philadelphia: Drexel University, 1979), 67.

²⁶ AACRAO's Student Records Management: Retention, Disposal, and Archive of Student Records, 2013, 81.

²⁷ <http://www.pesc.org/about-us.html>

matters. Thus, outsourcing of record management must be organized and overseen at the institutional level.

Given the number of third-party services that are offered to institutions, there are many options for electronic systems for student data and records, including custom-built systems that are specific to an institution, commercially-built generic systems to which the institution must mold its practice, and networks that allow institutions to access each other's records. Regardless of the type of system, there is one absolute: *the data belongs to the student and the student must authorize access*. This is specifically outlined in the Family Education Rights and Privacy Act (FERPA).

FERPA: The Student Data Privacy Law

The Family Education Rights and Privacy Act (FERPA) of 1974 (FERPA) created a profound change for education in the United States, since it applies to all levels of education. The fundamental principle of the law is that the data belongs to the student and cannot be shared legally without the authorization of the student, or the parent if the student is under age 18. The initial FERPA implementation was overseen by the federal office that handled education affairs at that time, the U.S. Office of Health, Education, and Welfare, in March 1976.²⁸ In that same year, the *AACRAO Guide to Postsecondary Institutions for Implementation of the Family Educational Rights and Privacy Act of 1974* was first published. In the forty-plus years since FERPA became law, this guide has been amended and updated numerous times. This publication by the nation's leading authority on FERPA is the definitive resource on FERPA interpretation and compliance – including student records management – for all American higher education institutions.

Given that FERPA is the tone setter for methods of exchanging records and data both within the U.S. and globally, it is important for contractors and agents who provide these services to understand the interpretations of FERPA. Changes to FERPA made in 2009 provide clarification of disclosure of personally-identifiable information to third-party organizations and contractors or vendors. Details of "Under what conditions is prior consent not required to disclose information?" are covered in §99.31 and clarified in changes made to FERPA in 2009.²⁹ Therefore, knowledge of FERPA and the structure of higher education administration in the United States are essential to the access and verification of records.

Challenges of Academic Record Verification

Despite the diversity of institutions across the U.S., there is a common approach in U.S. higher education to student record creation, management, retention and access: the data belong to the student and the registrar's office manages the records. FERPA governs the privacy of records. All access to student records is governed by FERPA, regardless of the method or means of access. According to FERPA, the student must authorize the release of records.

The key to success in obtaining verification of academic records of students with education from the U.S. begins with understanding this common approach. Best practice in the registrar's office includes providing tools that make it easy for the student to access her/his own records and to authorize others to access the records. However, FERPA is complex and third parties who wish to access student records or have them verified by the institution can encounter problems in getting the documentation they need. The need for guidance in interpreting FERPA never ceases. AACRAO has led the way in FERPA training for four decades and will continue to be the leader when it comes to the understanding and practice of FERPA.

²⁸ AACRAO 2012 FERPA Guide, eds. Rooker, LeRoy and Falkner, Tina M.

²⁹ *Ibid.*, 159.

Finally, the challenges involved in electronic access to students' records and the electronic exchange of data are rooted mainly in issues related to the technology involved. In the environment of the free market economy and decentralized education culture of the U.S., many options for electronic data management services exist.

Conclusions and Summary

The four models presented in this paper – Sweden, Ukraine, the West African Examinations Council (WAEC) and the United States – represent different approaches to managing student data electronically and providing access to third parties for the verification of student records. Each model also represents challenges to third party users.

In Sweden, while institutions are the primary source of verification of the documents they issue and are easy to contact, student records are also easily accessible by way of a centralized electronic database run by the higher education institutions, based on legislation giving public access to official records from public institutions. However, within Sweden awareness of the issue of fraud and the need for verification is not very widespread. Despite the fact that Sweden is perceived as having a low rate of fraud and corruption, the problem of Swedish degree fraud is growing. The existence of an easily-accessible centralized database should make it easy for the higher education community to be more proactive in safeguarding the integrity of Swedish higher education by promoting the verification of academic credentials, and developing even more effective verification tools as technology advances.

Ukraine is a country with a high level of corruption and fraud, and professional credential evaluators recommend seeking verification of academic documents from Ukraine. Through centralized mechanisms in the Ministry of Education and Science Ukraine has developed a national education portal that includes a database of student records at all levels of education. However, one of the challenges of the Ukrainian model is that the database is available only in Ukrainian. Should resources become available in the future for the development of tools to access student records with input in English and Russian, for example, the Ukrainian national database would be more useful. The Ukraine ENIC office is a very helpful resource to supplement the electronic database.

The region of West Africa is also an area with high level of fraud. As in Ukraine, the best effort of the WAEC to build an effective system for security of academic records is one small but important tool in the fight against fraud. The biggest challenge for the WAEC region is the pervasive culture of corruption.

The United States represents a decentralized system in which institutional autonomy represents a challenge, unless one knows that by federal law, student records belong to the student, the registrar's office maintains them, and the student's/parent's authorization is required to access them. One challenge in terms of electronic record transmission is the variety of service providers available to U.S. higher education institutions in the American free-market economy.

In summary, some of the challenges represented by the models of online databases and verification processes discussed here are: lack of awareness of the problem of fraud and the need for document verification, limitations on database reliability because of language issues, a persistent culture of widespread fraud despite an effective verification tool, and technological compatibility issues related to the use of a variety of electronic tools in a decentralized free-market environment.

We hope that this report will be of assistance to the symposium members.