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ABSTRACT

In response to state legislation requesting a comprehensive management information system and cost benefit analysis, the Washington State Board of Community College Education revised their reporting procedures with the goal of facilitating district and legislative requests, management of the community college system, and integration of the budget and planning processes. Two integrated regional consortia were established, one in Seattle and the other in Spokane. The computing system was defined as: (1) Administrative System, including the Student Information System (SIS), Financial Information System (FIS), and Management Information System (MIS); (2) Instructional Systems, which includes vocational and non-vocational. Recent efforts have been devoted to the Financial Interface which integrates the SIS and the FIS into the Common Administrative System. The article outlines development of the system step-by-step, and includes charts and a schematic drawing indicating the functions of each system and the relationship among the systems. (EMH)

21st Annual College and University Machine Records Conference

"A Common Student Information System for Washington State Community Colleges"

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CUMREC '76

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Southwestern Ohio
Regional Computer Center

A "COMMON" STUDENT INFORMATION SYSTEM FOR WASHINGTON STATE COMMUNITY COLLEGES

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In response to the 1973 Washington state legislature's request for "a viable plan for a comprehensive management information system and the development of a cost benefit analysis" (Substitute Senate Bill 2740), the Washington State Board for Community College Education prepared a planning report entitled Design for a Comprehensive Management Information System.

The recommendations listed in that document essentially were proposed revisions to the then-current State Board Management Information System (MIS) reporting procedures which would:

* Simplify data collection, preparation and submission into the system,
* Reduce the response time in producing reports,
* Integrate the data files and make them more accessible,
* Integrate the planning and budget processes within the State Board, and
* Provide the capability to perform program-related costing and budgeting.

Briefly, the ultimate goal of the proposed plan was to provide the State Board with an information system which would be responsive to legislative and district requests, enhance the State Board's capabilities to manage the community college system, and facilitate the integration of the budget and planning processes.

This integration of the planning and budgeting processes required the establishment of a student file which would be automated and remotely accessible as soon as feasible. This file would contain the individual student's name, identification number, major code and course identification numbers.

To the community colleges, this meant a student record for each student rather than summary enrollment data by courses.

The second set of recommendations given in the planning report included the establishment of an information systems unit at the State Board, and the development of a plan for utilization of computing resources for the community college system.

In January 1974, the legislature appropriated $500,000 to implement the basic recommendations made in the report. It also appropriated $268,000 for consultant services to examine the management information system and its integration with the computing resources of the state government.

In July, the State Board presented its proposal, A Plan for Utilization of Computing Resources and the Development of an Integrated Information System for Washington State Community Colleges, to the Washington State Data Processing Authority. This plan was oriented to meet nine major objectives:

1. To satisfy the information and instructional needs of the community colleges vis-a-vis computing services.
2. To satisfy the information needs of the State Board and other related state agencies.
3. To provide a means for appropriate future growth of computing within the state community college system.
4. To satisfy the objectives of the State Data Processing Authority, particularly for using standard systems and making efficient use of state computing resources.
5. To make maximum use of then-current system design (particularly the MIS reporting definitions), equipment resources and human resources.
6. To take advantage of the momentum of cooperation already built up in plans for two community college computer services consortia.
7. To identify the requirements, and obtain funds for this plan.
8. To ensure reliable and responsible service during the transitional phase.
9. To obtain support of the colleges, the State Board and the State Data Processing Authority for the plan.

In meeting these objectives, the following action was proposed and implemented:

* The State Board established and filled a new position, Director of Information Services, who would direct the current data processing activities and oversee the development of an integrated information system.
* Established guidelines for two integrated, regional consortia, one located in Seattle and another in Spokane.
* Established a plan for integrated data processing system development.
* Defined the community college computing system as:
  - A. Administrative System
    1. Student Information System (SIS)
    2. Financial Information System (FIS)
    3. Management Information System (MIS)

B. Instructional Systems
   1. Vocational
   2. Non-Vocational

* Established a community college group identified as the Washington Community College Information Systems Committee (WISC) to specify internal requirements for both the administrative and instructional systems; to integrate the college requirements with those of the State Board, such as MIS reporting, planning and budgeting; and to guide the appropriate uses of data processing.

As proposed, two data centers were established, one in Seattle with a Univac 90/60 with 196-K bytes of core memory and 174 million bytes of disk memory operating under OS/4 and using the IMS-4 file manager; another in Spokane with a Univac 9400 with 131-K bytes of core memory and 174 bytes of disk memory, operating under OS/4 and using IMS-4 file manager, with interactive terminals, Univac U-100's between each campus and data center. Thirteen colleges were proposed to tie to the Seattle center, eight to Spokane, and six colleges were the undetermined.

As of September 1975, of the state's 27 community colleges, the Seattle Data Center was serving 10 institutions with planned conversion of six by July 1976; the Spokane facility was serving six colleges with planned conversion of three in July 1976; and two colleges were providing their own service.

The status of the college system's participation now is:

Seattle Data Center

1. Bellevue Community College
2. Highline Community College
3. North Seattle Community College
4. Peninsula College
5. Seattle Central Community College
6. Shoreline Community College
7. Skagit Valley College
8. South Seattle Community College
9. Tacoma Community College
10. Whatcom Community College

The following colleges are planning conversions to Seattle by July 1976:

1. Centralia College
2. Edmonds Community College
3. Everett Community College
4. Green River Community College
5. Olympia Vocational-Technical Institute
6. Olympic College

Spokane Data Center

1. Fort Steilacoom Community College
2. Lower Columbia College
3. Spokane Community College
4. Spokane Falls Community College
5. Walla Walla Community College
6. Wenatchee Valley College

These colleges are planning conversions to Spokane by July 1976:

1. Big Bend Community College
2. Grays Harbor College
3. Yakima Valley College

Independent Campus Processing Centers

Colleges currently providing their own computer services are:

1. Clark College
2. Columbia Basin Community College

The State Board's organization of advisory committees and commissions include the Washington Association of Community Colleges (WACC). The presidents of each of the 27 campuses serve on this group. Reporting to WACC is a series of commissions which act in an advisory capacity, consisting of the Business Affairs Commission, the Instructional Commission and the Student Services Commission. And, under each of the commissions is a series of sub-organizations to both advise on and to carry out operational policies and procedures.

The definition of the community college computing systems centered around a committee, previously mentioned (Page 3), formed by the WACC organization, called the Washington Community College Information Systems Committee (WISC). Its membership is composed of the Seattle and Spokane Data Center managers, representing the two consortia; a person representing the non-consortia colleges; the Business Affairs Commission; the Instructional Commission; the Student Services Commission; representatives from the State Board for Community College Education and the State Data Processing Authority; and a liaison person to the Washington Association of Community Colleges.

The representatives from the State Board, the State Data Processing Authority, and the liaison person from the Washington Association of Community Colleges are non-voting members.

The WISC group was organized in a manner to deal with specific problems and to produce results in the form of systems requirements in these major areas:

1. The Administrative System: Student Information System
   Financial Information System
   MIS Reporting
2. The Instructional Systems: Vocational
   Non-Vocational.

Involvement in the development of systems requirements was done through requesting participation from the various Washington State Student Services Commissions. As previously stated, each commission was represented on the WISC group, and their sub-commissions were represented on each WISC task group.

Ten task groups were formed under the WISC committee, with Task Group VII assigned responsibility for developing the Student Information Services and Reporting Systems Requirements. The membership of this group included representatives of the Washington Association of Community College Registrars and Admissions Officers, Washington Association of Community College Student Activities Personnel, Washington State Financial Aids Association, and the Washington Community College Counselors Association, in addition to individuals from the WISC parent body and the State Board for Community College Education.

Task Group VII's charge as of July 1974 was to:

1. Define specific elements or sub-systems of a broadly defined Student Information System (SIS) as described in the report, A Plan for Utilization of Computing Resources and Development of an Integrated Information System for Washington State Community Colleges, published by the State Board in July 1974. (Copy available upon request.)
2. Prepare a list of "desirements" for each of the sub-systems as defined. (This was completed in September 1974 and presented to the WISC committee.) (Copy available upon request.)
3. Prepare detailed requirements for each sub-system, providing for a totally integrated Common Student Information System. (Copy available upon request.)
4. Produce final requirements documents in a specific Computer Sciences Corporation format. (The firm then was consulting to the State Board.)
5. Gain approval from all of the Washington State Student Services Commissions as to the requirement specifications by February 1975.
6. Present approved requirement specifications to the WISC committee, also by February 1975.

By the February 1975 deadline, the requirement specifications for the Student Information System were approved by each of the State Student Services Commissions, and forwarded to the WISC committee for review.

WISC established a priority for the development of five of the original seven student sub-systems, and a small task force of volunteers on release time from their colleges began the completion of the requirements for the admissions, registration, financial aid, records and course/section sub-systems. The Student Record System developed by the Spokane Community College District was chosen as the base line system for development and enhancement. It was the only on-line registration system within the Washington state community colleges.

In April and May of last year, plans for further development activities were presented to the state legislature which approved $1.026,000 for systems development, design and computer subsidy for colleges converting to the computer centers.

In July, plans for development of the basic Student Information System and the Financial Information System were approved by the WISC committee, the State Board and the State Data Processing Authority, and data center staff were hired to begin converting the requirement specifications into design and implementation.

The Task Group VII was then dissolved, and a new committee, designated the Student Systems Project Management Group, was formed with specific responsibility for managing the Student Information System development from requirements through design and implementation.

The plan specifically outlines the work to be accomplished, and the persons and bodies responsible for each phase. (A copy of the plan is available upon request.)

The schedule for development currently is:

	Item	Week Ending Date
1-1a	User Guide (Existing SIS)	10/31/75
1-1b	User Guide (Release 1) Course/Section	1/16/76
1-1ba	User Guide (Release 1a)	4/21/76
1-1c	User Guide (Release 2)	7/12/76
1-1d	User Guide (Release 3)	8/23/76
1-1e	User Guide (Release 4)	10/24/76
1-2	Release and Update of SIS Requirement Specifications (Revision 1)	11/15/75
1-3	Design Document (Revision 1)	12/5/75
1-4	Schedule Assessment	12/5/75
2-1	Release 1 - Course/Section	2/1/76
2-2	Release 2 - Registration and Financial Aid Interface	5/1/76
2-3	Release 3 - Records Sub-System	9/6/76
2-4	Release 4 - Financial Aid Sub-System	11/8/76

The Student Systems Project Management Group has met once or twice each month since last August to approve final requirements for the conceptual design of the course/section, financial aids and admissions sub-systems. Basic segments of the registration and records sub-systems are to be completed early this year.

Recently, major effort has been devoted to the Financial Interface which provides for the integration of the Student Information and Financial Information Systems into the Common Administrative System.

The Financial Interface Sub-System provides the major integration of the Student Information and Financial Information Systems. It links and interfaces the admissions, course/section, registration and financial aid sub-systems of the Student Information System, and the financial aid, accounts payable, accounts receivable, revenue and general ledger sub-systems of the Financial Information System. (Attachment 1)

This interface sub-system provides, through a student account, a record of all fees charged and collected by quarter from each student; plus all refunds or disbursements, such as financial aid, to each student.

Conversion of Colleges

In August 1975, a survey of all of the colleges was made to determine their approximate conversion dates to the Common Administrative System. This table shows the results of that survey:

College	Student System Conversion	Financial System Conversion
1. Bellevue Community College	7/75	7/75
2. Big Bend Community College	3/76	7/76
3. Centralia College	7/76	7/76
* 4. Clark College	none	none
* 5. Columbia Basin Community College	none	none
6. Edmonds Community College	7/76	7/76
7. Everett Community College	7/76	7/76
8. Fort Steilacoom Community College	12/74	7/76
9. Grays Harbor College	3/76	7/76
10. Green River Community College	7/76	7/76
11. Highline Community College	1/76	1/75
12. Lower Columbia College	5/75	7/76
13. North Seattle Community College	7/76	1/69
14. Olympia Vocational-Technical Institute	7/76	7/76
15. Olympic College	7/76	7/76
16. Peninsula College	4/75	4/75
17. Seattle Central Community College	7/76	1/69
18. Shoreline Community College	7/76	7/76
19. Skagit Valley College	7/75	7/75
20. South Seattle Community College	7/76	1/69
21. Spokane Community College	1/73	1/73
22. Spokane Falls Community College	1/73	1/73
23. Tacoma Community College	5/75	7/76
24. Walla Walla Community College	12/74	7/76
25. Wenatchee Valley College	9/74	7/74
26. Whatcom Community College	2/75	4/75
27. Yakima Valley College	1/76	7/76

With the development of the computer application system now underway, and with commitment of most colleges to participate, attention now centers on the following areas and questions:

1. A definition of "Common Administrative System."

* Independent Data Processing Centers

2. A definition of "system."
   * Are we developing computer application systems which might be described as the flow of data from input to the computer, to the handling of data internally within the computer, and the computer center, the process that occurs in programming and the output reports or displays generated by the computer?
   * Or, are we developing a system described as a total process or process that occurs in the application and execution of any task which might include the computer as a link in the process or task, similar to a typewriter or adding machine in the process of writing a letter or footing a balance?
3. What segments of the Common Student System being developed will actually be "common" to all of the colleges? What segments will be optional to each college, and what will be the cost associated with these options?
4. How much will the Common Administrative System cost each user when fully developed?
5. How do we manage a Student Information System project and a Financial Information System project to allow for an integrated system when the project teams are separated into two data centers 300 miles apart?
6. The schedule adjustments necessary to allow colleges to convert to a common system consistent with the admission and registration of students, and the financial accounting processes of their colleges.
7. The further development and ultimate design of the Financial Interlace Sub-System.

Although we are faced with many difficult questions in the months ahead, we are optimistic of success as we review our progress during the past two years.

Then, we had only a general idea of desirements and requirements of a Student Information System, no dollar funding for its development, and a Student Record System which did not meet all college user needs.

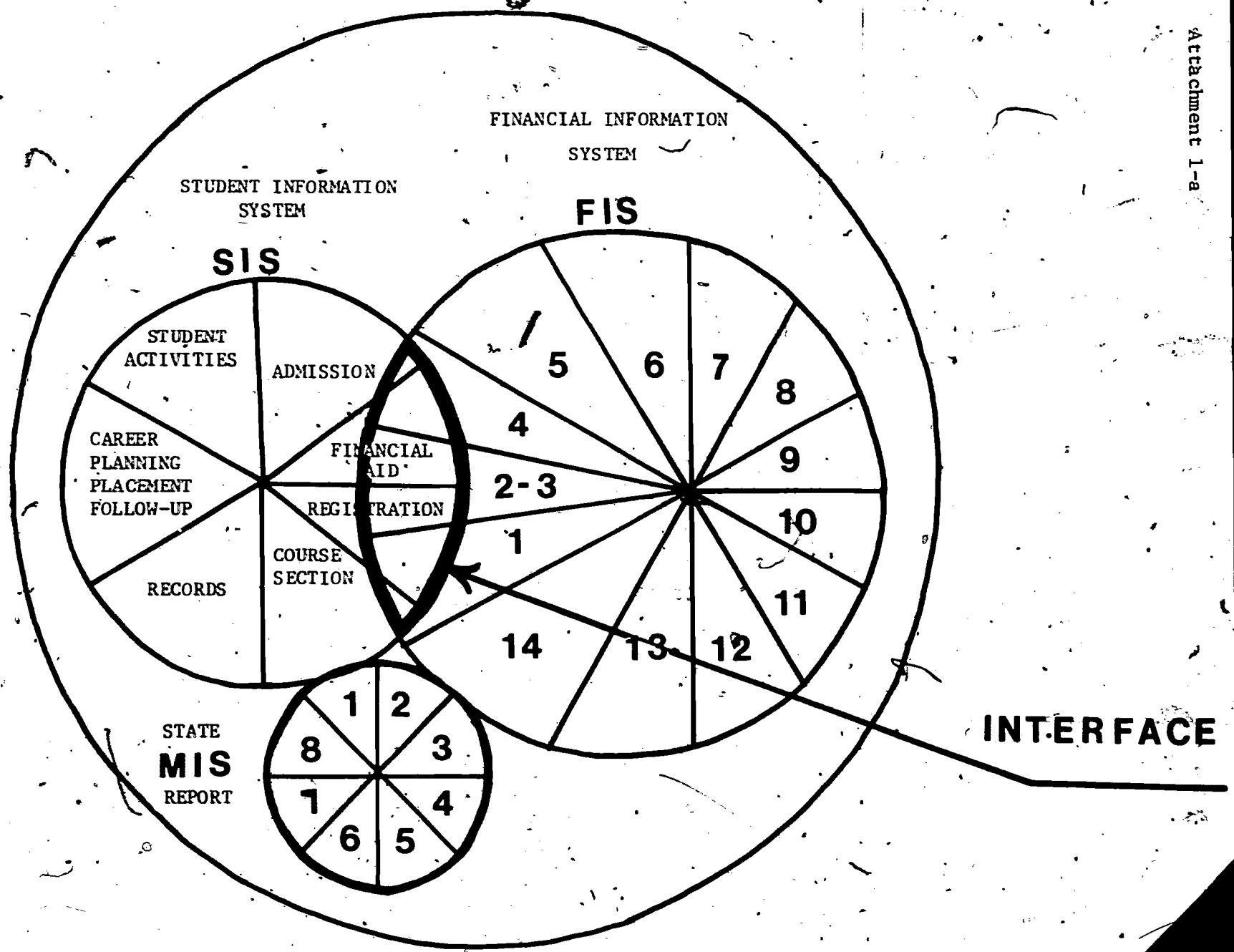
We now have a specific plan for development and design, funds and personnel to design the system, and commitments from most colleges to participate in the common system.

I am reminded of a quote by Machiavelli which seems to express some of our experiences, and suggests the challenges before us:

"There is nothing more difficult, more perilous, or more uncertain of success, than to take the lead in introducing a new order of things."

STATE OF WASHINGTON

COMMUNITY COLLEGE ADMINISTRATIVE COMPUTING SYSTEMS



Attachment 1-a

Attachment 1-b

STATE OF WASHINGTON

COMMUNITY COLLEGE ADMINISTRATIVE COMPUTING SYSTEMS

STUDENT INFORMATION SYSTEM (SIS)

1. Admissions
2. Financial Aid
3. Registration
4. Course/Section
5. Records
6. Career Planning, Placement and Follow-up
7. Student Activities

Attachment 1-c

STATE OF WASHINGTON

COMMUNITY COLLEGE ADMINISTRATIVE COMPUTING SYSTEMS

FINANCIAL INFORMATION SYSTEM (FIS)

1. General Ledger
2. Accounts Receivable
3. Accounts Payable/Purchase
4. Revenue Accounting
5. General Accounting
6. Budget
7. Payroll
8. Grant and Contract Accounting
9. Capital Project Accounting
10. Financial Aid
11. SBCCE Consolidation
12. Personnel/Faculty Activity Analysis
13. Equipment Inventory
14. Facilities Inventory

Attachment 1-d

STATE OF WASHINGTON

MANAGEMENT INFORMATION SYSTEM (MIS) REPORTS

1.	MIS-1	Student Enrollment Report
2.	MIS-2	Course Effort Report
3.	MIS-3	Facilities Inventory Report
4.	MIS-4	Occupational Effort Report
5.	MIS-5	Financial Information Report
6.	MIS-6	Professional Personnel Report
7.	MIS-7	Classified Personnel Report
8.	MIS-8	Equipment Inventory Report

Ray Haines
Seattle Community College District
Seattle, Washington

SEATTLE COMPUTING COOPERATIVE

Computer Configuration

Central Processing Unit - UNIVAC 90160 262K Main Memory

Tape Transports - (3) UNIVAC Uniservo 16

Disc Drives - (8) UNIVAC 8425
466.8 Million Characters

Printer - UNIVAC 0768
1100 Lines/Minute

Card Reader - UNIVAC 0716-02
1000 Cards/Minute

Card Punch - UNIVAC 0604
250 Cards/Minute

Data Communication - DCS-4
3 Leased Lines
2400 Baud Modems
40 UNIVAC U100 Terminals

SPOKANE DATA CENTER

Computer Configuration

Central Processing Unit - UNIVAC 9400 131K Main Memory

Tape Transport - (2) UNIVAC Uniservo VI-C

Disc Drives - (2) UNIVAC 8425
(6) UNIVAC 8414
291.8 Million Characters

Card Reader - UNIVAC 0711
600 Cards/Minute

Card Punch - UNIVAC 0604
250 Cards/Minute

Printer - UNIVAC 0768
1100 Lines/Minute

Data Communication - DCS-1
1 Leased Line
1200 Baud Modems
16 UNIVAC 100 Terminals

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A 'Common' Student Information System for Washington State Community Colleges

Conversion of Colleges

Approximate conversion dates to the Common Administrative System

	College	Student System Conversion	Financial System Conversion
1.	Bellevue Community College	7/75	7/75
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25.	Wenatchee Valley College	9/74	7/74
26.	Whatcom Community College	2/75	4/75
27.	Yakima Valley College	5/76	7/76

* Undetermined